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November 30, 2022

Administrator, DOSD
Attn: Greg Fedner, P.E.
Section Manager, Plan Review Section
1250 Fairwood Avenue
Columbus, OH 43206

Subject: Project Enzo: Type III Variance from Stormwater Drainage Manual

Dear Mr. Fedner,

On behalf of Mars Petcare US, EMH&T is submitting an application for a Type III variance from the City of Columbus Stormwater Drainage Manual for the proposed expansion of the Mars Petcare Fisher Road Plant, referred to as "Project Enzo."

The proposed expansion site contains Stream Corridor Protection Zones (SCPZ) located along three (3) unnamed tributaries in the Dry Run-Scioto River subwatershed. The proposed project will result in direct, prohibited impacts to 141 linear feet of two perennial streams and 1.29 acres of associated SCPZ, including 0.27 acre of wetland. The project will also involve permitted uses within onsite SCPZ, including permanent impacts to 35 linear feet of perennial stream (0.05 acre of SCPZ) for a driveway culvert extension and temporary impacts to 55 linear feet of intermittent stream (0.07 acre of SCPZ) in order to tie into the sanitary sewer. The mitigation plan developed for and included as part of this variance application includes onsite stream and SCPZ enhancement activities.

The following information is provided in support of the application:

- Project Name: Project Enzo
- Address, PID, Site Disturbance and Total Site Area:
Address: 5115 Fisher Road, Columbus, OH 43228
PIDs: 570-103920, 570-302750, and 570-302752
Site Disturbance: 63 acres
Total Site Area: 109.7 acres
- Primary (Owner) Contact:
Mars Petcare US, Attn: Shane Watts
2013 Ovation Parkway, Franklin, TN 37067
614-374-3176; shane.watts@effem.com

Additional information pertaining to the requested variance is included in the enclosed application document. Please contact me with any questions at (614) 775-4523, or by email at hdarding@emht.com.

Sincerely,

A handwritten signature in blue ink that reads "Heather L. Dardinger".

Heather L. Dardinger
Senior Environmental Scientist

Enclosures: 1

Copies: Shane Watts, Mars Petcare US



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PROJECT ENZO

City of Columbus SWDM Type III Variance Application

Mars Petcare US

November 30, 2022

emht.com

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- EXHIBIT 1: Preferred Plan
- EXHIBIT 2: Minimal Impact Alternative
- EXHIBIT 3: Stream Mitigation Concept
- EXHIBIT 4: Stream Mitigation Details
- EXHIBIT 5: Wetland Mitigation

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- APPENDIX A: Delineation of Waters of the United States
- APPENDIX B: USACE Approved Jurisdictional Determination
- APPENDIX C: SCPZ Tree Inventory
- APPENDIX D: QHEI and HHEI Dataforms
- APPENDIX E: ORAM Dataform

1.0 INTRODUCTION

The following report provides information pertaining to a requested variance from the City of Columbus Stormwater Drainage Manual (May 2021) (the Manual) for the proposed expansion of the existing Mars Petcare Fisher Road Plant, referred to as “Project Enzo.” Mars Petcare US is considering this expansion of their existing facility located at 5115 Fisher Road, Columbus, Franklin County, Ohio.

1.1 Project Location

The proposed project site encompasses approximately 110 acres located on three (3) parcels (Franklin County Parcel ID 570-103920, 570-302750, and 570-302752). The proposed expansion project will be located adjacent to the existing Mars Petcare plant located south of Fisher Road, west of Interstate 270, and east of Hilliard-Rome Road (refer to Figure 1). The proposed expansion area mainly consists of a former railyard containing stream corridors, a pond, and overgrown areas including old field, scrub-shrub, and forested habitats. An existing detention basin is present near the northern site boundary, and a system of constructed drainage ditches associated with the railyard runs throughout much of the property. Two unnamed, perennial tributaries of Dry Run flow through the central and southern portion of the site from west to east. One intermittent tributary to Dry Run flows from west to east along the south side of Fisher Road near the northern site boundary.

1.2 Project Purpose

The purpose of proposed Project Enzo is to significantly expand the existing Mars Petcare Fisher Road Plant, thereby increasing its processing/packaging facilities and warehouse/storage space while allowing for future additional expansion. The proposed project will also include the construction of necessary support features, including: paved parking areas, shipping docks, and internal roadways, including a new main entrance off of Manor Park Road; a power station; a relocated fire protection facility; a waste treatment center; employee amenities; a stormwater retention basin; utilities; and perimeter fencing.

1.3 Delineation of Waters of the U.S.

A delineation of the proposed project site was completed and submitted to the U.S. Army Corps of Engineers (USACE) in order to identify the location, extent and quality of stream and wetland features within the project area (Appendix A). The USACE issued Approved and Preliminary Jurisdictional Determination (JD) for the site on December 3, 2021 (Appendix B). Within the proposed expansion area, the following jurisdictional features were identified:

- 0.35 acre of emergent wetland (Wetland A);
- 0.94 acre of forested wetland (Wetland B); and
- Two (2) perennial streams (Streams 1 and 2) comprising a total of 3,991 linear feet of open channel and 1,231 linear feet contained within existing culverts.

Stream 1, an unnamed tributary of Dry Run, flows for approximately 1,731 linear feet through the southern portion of the proposed project site. Approximately 378 linear feet of Stream 1 is

contained within existing culvert structures; the remaining 1,353 linear feet is open channel. As defined by the Manual, the SCPZ along Stream 1 is 125 feet wide.

Stream 2 flows for approximately 3,491 linear feet through the central portion of the proposed project area. Approximately 853 linear feet of Stream 2 is currently culverted; the remaining 2,638 linear feet consists of open channel. The SCPZ along Stream 2 is 90 feet wide, except where it widens to include Wetlands A and B, which are located adjacent to Stream 2.

During the field effort for proposed Project Enzo wetland and stream delineation, intermittent Stream 3 was identified along the south side of Fisher Road. It was initially believed that this feature was located just outside of the permit area to the north; therefore, Stream 3 was largely excluded from the delineation report. It has since been determined that the permit area boundary should include a 55 linear foot segment of Stream 3 which includes an existing sanitary sewer manhole, as shown on the exhibits included in this report. The SCPZ along Stream 3 is 80 feet wide. A request to amend the JD to include this segment of Stream 3 was submitted with the Nationwide Permit application for the site on October 3, 2022. This permit application is currently under review.

In addition to the streams and wetlands, one (1) 0.96-acre isolated pond (Pond 1), a 0.53-acre detention basin, and approximately 5,704 linear feet of a drainage ditch network were also identified within the subject site. The excavated drainage ditches and detention basin were constructed as part of the railyard and are depicted as drainage/detention features on a 1985 plan set for the Consolidated Rail Corp. (Conrail) "Proposed M/W Distribution Center at Buckeye Yard A/C I-670." These resources were all verified as non-jurisdictional by the USACE.

1.4 Tree Inventory

EMH&T conducted a tree inventory within the areas of proposed SCPZ impact located on the Project Enzo site on September 21, 2022 and November 14, 2022. All trees with a diameter at breast height (DBH) of six (6) inches or greater were included within the tree inventory. Information noted for each tree included: size (DBH); species; condition; and location. This inventory was completed to support the development of a reforestation plan, as further discussed in Section 3.2. A total of 90 trees with 6-inch DBH or greater were identified within the SCPZ impact areas; of these, 77 were living, non-invasive trees. The results of the tree inventory are provided in Appendix C.

1.5 Summary of Impacts

As shown on Exhibit 1, the proposed project involves direct channel impacts and SCPZ-only impacts to the onsite streams, resulting from both permitted uses and prohibited activities, as defined by the Manual. The impacts associated with permitted uses, which do not require a variance from the Manual, include:

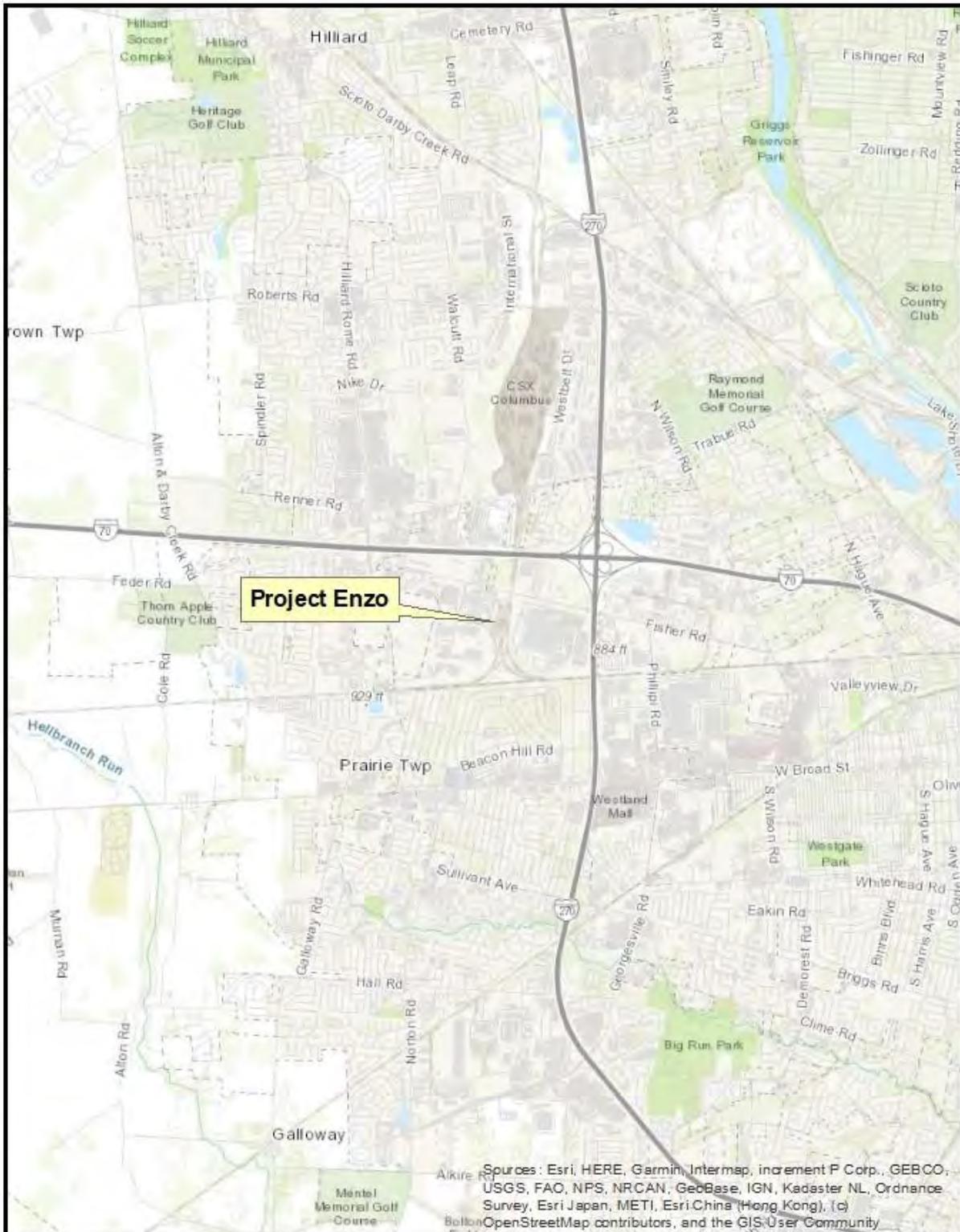
- A permanent, permitted impact of 35 linear feet along perennial Stream 2 to extend/replace an existing culvert to provide an improved driveway crossing. This will impact 0.047 acre of SCPZ along Stream 2.
- A temporary, permitted impact of 55 linear feet along intermittent Stream 3 to connect the expanded facility to an existing sanitary sewer line. This will require the clearing of approximately 0.066 acre of SCPZ (including two trees ≥ 6 " DBH) along Stream 3.

In addition, the following impacts are proposed related to the installation of new paved areas, as well as installation of perimeter fencing. These impacts are not considered permitted uses per the Manual.

- 23 linear feet of Stream 1 and 118 linear feet of Stream 2 will be impacted for the installation of culverts and paving to provide new trailer parking. These activities will include impacts to 0.259 acres of SCPZ along Streams 1 and 2.
- 0.19 acre of Wetland A (part of the Stream 2 SCPZ) will be impacted for paving to provide trailer parking and internal access to the expanded facility.
- 0.646 acres of SCPZ along Streams 1 and 2 (including 0.08 ac of Wetland B) will be impacted for installation of a perimeter security fence.
- 0.196 acre of SCPZ along Stream 3 will be impacted for pavement removal and installation of the perimeter security fence.

A total of 141 linear feet of perennial channel and 1.29 acres of SPCZ is proposed to be impacted in association with prohibited activities to accomplish the proposed facility expansion. As such, Mars Petcare US is seeking a Type III variance for the project.

A Nationwide Permit has also been requested from the U.S. Army Corps of Engineers Huntington District for permanent impacts to 0.27 acre of jurisdictional wetland and 176 linear feet of perennial stream, and temporary impacts to 55 linear feet of intermittent stream. This permit is currently under review.



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO

Project Enzo
SCPZ Impact Location Map
Figure 1



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2.0 TYPE III VARIANCE (STREAM PROTECTION)

The SCPZ consists of the stream channel and the adjacent riparian area, including streamside wetlands and buffers. Its purpose is to allow the natural lateral movement of the stream, provide sufficient area for flood conveyance, protect water quality, and prevent structures from being impacted by streambank erosion. A SCPZ is present along two (2) perennial tributaries (Streams 1 and 2) and one (1) intermittent tributary (Stream 3) at the Project Enzo site. The Preferred Plan will encroach upon the streams and their SCPZs for prohibited and permitted impacts. The Preferred Plan will also partially encroach upon wetlands located within the SPCZ along Stream 2.

Mars Petcare US is requesting a variance from Section 1.3.2 and 1.3.3 of the Manual for the proposed expansion. The requested variance would allow SCPZ, stream channel, and associated wetland impacts in order to construct the proposed facility expansion, extend existing onsite culvert systems to allow for site paving, and for the installation of a perimeter security fence.

2.1 Proposed SCPZ Impacts

Under the Preferred Alternative, discussed in Section 2.3.1, the proposed area of non-permitted impacts within the SCPZ is 1.29 acre, which includes 141 linear feet of direct channel impacts to Streams 1 and 2 and 0.27 acre of jurisdictional wetland impact (refer to Exhibit 1). As discussed in the following sections, the proposed impacts to these features will allow for construction of the preferred expanded facility layout. In addition, the proposed project will require permitted impacts to 0.11 acre of SCPZ, which includes 35 linear feet (0.047 acre of SCPZ) of Stream 2 for a driveway crossing and 55 linear feet (0.066 acre of SCPZ) of Stream 3 to connect the expanded facility to an existing sanitary sewer line. The remaining onsite wetland, stream channels and SCPZ will be preserved in a conservation easement to be granted to the City of Columbus, in accordance with the requirements of the Manual.

2.2 Existing Conditions

The property is bordered by Fisher Road to the north, a rail line and a business park to the east, a rail line, residential and industrial/commercial properties to the south, and industrial/commercial and agricultural properties to the west. The property was previously owned and operated by the Norfolk Southern Railway Company dating back to the early 1970s. The property consists mainly of a vacated railyard, stream corridors, and old field, scrub-shrub, and forested areas adjacent to the existing Mars Petcare plant facility. The site is located within the Dry Run-Scioto River subwatershed (HUC: 05060001-12-05). Three streams and two wetlands are present on the property. These water resources are summarized in Table 1, and described further below.

TABLE 1
Summary of Onsite Streams and Wetlands

Resource	Length (lf)		Wetland Area (ac)	SCPZ		Watershed Area (ac)	QHEI	HHEI	ORAM
	Open Channel	Culvert		Width (ft)	Area ¹ (ac)				
Stream 1	1,353	378	--	125	3.89	411	63	--	--
Stream 2	2,638	853	--	90	6.40	172	--	58	--
Stream 3	55	--	--	80	0.26 ²	125	--	29	--
Wetland A	--	--	0.35	--	--	--	--	--	42
Wetland B	--	--	0.94	--	--	--	--	--	
Total	4,046	1,231	1.29	--	10.55	--	--	--	--

1. Culverted segments have been omitted from SCPZ area calculations; Stream 2 SCPZ includes the wetland areas.

2. Includes 0.07 acre along onsite segment plus 0.20 acre extending into project area from offsite, adjacent stream.

2.2.1 Streams and SCPZ

Stream 1

Stream 1 is an unnamed, undesignated, perennial tributary of Dry Run. The stream begins west of the subject property, flowing eastward for 1,731 linear feet through the southern portion of the site and into a culvert that carries the flow offsite to the east. The stream appears to have been relocated and modified by the railroad between 1965 and 1971 as part of construction of the tracks running north to Norfolk Southern Buckeye Yard (located approximately 1.5 miles north of the site). Approximately 378 linear feet of the stream is enclosed within existing culvert beneath the former railroad lines.

The Stream 1 SCPZ was calculated to be 125 feet wide based on its watershed area of 411 acres. The SCPZ and adjacent riparian corridor, where present, is dominated by scrub-shrub vegetation, including willows and invasive honeysuckle (*Lonicera* spp.) and autumn olive (*Eleagnus umbellata*). A steep, shrubby embankment leading to an elevated railroad track is present along the right bank of Stream 1, while a narrower embankment separates the left bank from an adjacent gravel driveway.

Stream 1 was assessed using the Qualitative Habitat Evaluation Index (QHEI), obtaining a score of 63, which is indicative of ‘good’ habitat quality, related primarily to its cobble/gravel substrate. Stream 1 was assigned a provisional aquatic life designation of Modified Warmwater Habitat (MWH), owing to its historic channelization and modification by the railyard operations, from which the stream exhibits partial to no recovery. The QHEI form is included in Appendix D.

Stream 2

Stream 2, an unnamed, undesignated, perennial tributary to Dry Run, begins northwest of the project site and flows for 3,491 linear feet through the central portion of the subject property before discharging to a culvert that carries the flow offsite to the east. The stream has been channelized and sections were culverted as part of the railyard construction in the 1960s and 1970s. Approximately 853 linear feet of the stream is enclosed within existing culvert beneath the former railroad lines.

The Stream 2 SCPZ was calculated to be 90 feet wide based on its watershed area of 172 acres. The SCPZ widens to include the limits of Wetlands A and B. The stream is located within a sparsely forested area dominated by young, immature trees with an invasive honeysuckle/autumn olive understory. Beaver dams were noted along the stream reach, leading to impounded conditions. Further downstream near the existing railyard, Stream 2 curves to the south. This reach was less impaired and exhibited better floodplain connectivity.

Headwater Habitat Evaluation Index (HHEI) assessments were performed on Stream 2. The HHEI metric is applicable to streams with a watershed area of less than one square mile and maximum pool depths less than 40 centimeters, both of which apply to Stream 2. The stream received an HHEI score of 58, indicative of Modified Class II Primary Headwater Habitat. The HHEI dataforms are provided in Appendix D.

Stream 3

Intermittent Stream 3 flows along the south side of Fisher Road near the northern proposed project site boundary. Approximately 55 linear feet of Stream 3 is contained within the proposed project site boundaries. This stream has a watershed of approximately 125 acres, and its SCPZ was calculated to be 80 feet wide. Portions of the SCPZ associated with offsite portions of the Stream 3 channel overlap with the project area.

Stream 3 received an HHEI score of 29, indicative of Modified Class I Primary Headwater Habitat (Appendix D). The SCPZ is mostly comprised of an existing gravel driveway and manicured lawn with a small stand of ornamental crabapple trees (*Malus* spp.). Invasive honeysuckle and autumn olive shrubs, cottonwood (*Populus deltoides*) saplings, and typical upland field vegetation are present beyond the landscaped areas within the Stream 3 SCPZ.

2.2.2 Wetlands

Two jurisdictional wetlands (Wetlands A and B) are present within the SCPZ along Stream 2. Wetland A is a 0.35-acre emergent wetland located adjacent to the north of Stream 2, and Wetland B is a 0.94-acre forested wetland that is adjacent to the south. A portion of Wetland B extends offsite to the southwest.

An assessment of Wetland A and Wetland B within the permit area was completed using the Ohio Rapid Assessment Method (ORAM) Version 5, which was developed by the Ohio EPA for use in determining wetland quality (Mack, 2001). The ORAM assessment was verified by the Ohio EPA via a site visit conducted on November 14, 2022. Ohio EPA indicated that because the wetlands exhibit hydrologic connectivity, they should be scored together for the purposes of the ORAM assessment. The ORAM score for combined "Wetland AB" was determined to be 42, indicating it is a Modified Category 2 wetland. The ORAM dataform as verified by the Ohio EPA is provided in Appendix E.

2.3 Site Development Alternatives

2.3.1 Proposed Conditions / Preferred Alternative

Under the Preferred Alternative (Exhibit 1), a 73-acre vacant railyard would be redeveloped to allow for a significant expansion of the existing Mars Petcare facility. The railyard would be almost entirely demolished to allow for the construction of a processing and packaging building, a power substation, combined warehouse and storage space, shipping docks, relocated fire protection facility, waste treatment area, assorted amenities, expanded and new parking lots, and paved surfaces providing access through the expanded facility. In addition, an improved entrance driveway would be constructed off of Manor Park Road along the west side of the site. Stormwater management would be provided via a retention basin to be constructed along the east side of the expanded facility.

The Preferred Alternative would result in permanent, non-permitted impacts to **141 linear feet of perennial channel and 1.29 acre of SCPZ (including 0.27 acre of jurisdictional wetland)**. These impacts would result in the removal of 75 living, non-invasive trees with a DBH of 6 inches or greater within the SCPZ. Specifically, the prohibited use impacts to aquatic habitats and associated SCPZ presented in Table 2 are proposed.

TABLE 2
Preferred Alternative: Proposed Prohibited Use Impacts

Resource ID	Type	Extent Onsite ¹	Direct Impact	SCPZ Impact	Tree Impacts ³
Stream 1	Perennial	1,353 lf	23 lf	0.467 ac	57
Stream 2	Perennial	2,638 lf	118 lf	0.628 ac ²	15 ²
Stream 3	Intermittent	55 lf	--	0.196 ac	3
Total Stream	--	4,046 lf	141 lf	1.29 ac	75
Wetland A	Emergent	0.35 ac	0.19 ac	--	--
Wetland B	Forested	0.94 ac	0.08 ac	--	--
Total Wetland	--	1.29 ac	0.27 ac	--	--

1. Reflects open channel (non-culverted) stream present onsite.
2. Stream 2 SCPZ and tree impacts includes the 0.27 acre of wetland impacts located within the SCPZ.
3. Reflects living, non-invasive trees that are 6-inch DBH or greater that will be cleared within the SCPZ.

The prohibited use impacts to the Stream 1 and Stream 2 channels and SCPZ are necessary to install culverts within the limited open segments of channel located amidst the existing onsite culvert system (which would then be paved over for internal facility access and trailer parking). The proposed 0.19 acre of impact to Wetland A is necessary for the proposed construction of a new paved area to provide trailer parking and access to and around the proposed processing and packaging facility. In addition, portions of the SCPZ along Streams 1, 2 and 3 (including 0.08 acre of Wetland B) would be impacted for the installation of perimeter fencing necessary to secure the proposed manufacturing facility. The remainder of the stream channels and SCPZ would be avoided.

The site plan reflected on the Preferred Alternative conforms to certain layout and building size requirements for the proposed expansion. The dimensions of the processing and packaging facility are the result of internal operational factors, including the required layout and dimensions of the production lines. As such, reduction in the size of the proposed processing facility is not feasible.

However, the Preferred Alternative went through an iterative process to reduce impacts to surface water resources to the extent practical.

As part of the iterative plan process, impacts to onsite stream and SCPZ were significantly reduced by configuring the proposed trailer parking on the six-acre lot west of Manor Park Drive to avoid 8,544 linear feet of Stream 2 and 1.23 acre of associated SCPZ. The initial development plan would have impacted Stream 2 and its SCPZ by culverting the stream and implementing trailer parking across the entire 6-acre lot. This would have potentially provided approximately 100 or more trailer parking spots, as compared to the 80 spots provided on the Preferred Alternative. Recognizing the value of the stream corridor, the applicant was able to modify the proposed development plan to shift more of the trailer parking to the southeast of the proposed processing and packaging facility, to preserve Stream 2 and its SCPZ west of Manor Park (aside from minor SCPZ impacts associated with the perimeter security fence).

Shifting the majority of the trailer parking to the southeast requires 141 linear feet of direct channel impacts to Streams 1 and 2. However, these impacts would be limited to the small, open segments of channel located amidst the existing onsite culvert system. In addition to providing the desired trailer parking, rehabilitating the culvert system through this area would allow the culverts to be properly sized and improve drainage through the property. The proposed loss of 141 linear feet of low quality, historically channelized and culverted, perennial stream channel and its SCPZ was determined to be necessary to support the proposed expansion, and ecologically preferable to impacting 8,544 linear feet of Stream 2 west of Manor Park Drive.

2.3.2 Minimal Impact Alternative

In the Minimal Impact Alternative (Exhibit 2), the direct channel impacts to Stream 1 and Stream 2 have been eliminated by reconfiguring the proposed southeast trailer parking area. Eliminating the direct channel impacts constrains the width and length of the proposed parking area to avoid impacts to 141 linear feet of stream channel and 0.21 acre of SCPZ. Impacts to other portions of the SCPZ along Streams 1, 2 and 3 (including 0.19 acre of Wetland A and 0.08 acre of Wetland B) associated with the proposed facility and perimeter fencing would remain the same under this alternative. This Minimal Impact Alternative would reduce the overall SCPZ impact associated with non-permitted activities to 1.08 acre, as listed in Table 3.

TABLE 3
Minimal Impact Alternative: Proposed Prohibited Use Impacts

Resource ID	Type	Extent Onsite ¹	Direct Impact	SCPZ Impact	Tree Impacts ³
Stream 1	Perennial	1,353 lf	0 lf	0.467 ac	57
Stream 2	Perennial	2,638 lf	0 lf	0.421 ac ²	15 ²
Stream 3	Intermittent	55 lf	--	0.196 ac	3
Total Stream	--	4,046 lf	0 lf	1.08 ac	75
Wetland A	Emergent	0.35 ac	0.19 ac	--	--
Wetland B	Forested	0.94 ac	0.08 ac	--	--
Total Wetland	--	1.29 ac	0.27 ac	--	--

1. Reflects open channel (non-culverted) stream present onsite.
2. Stream 2 SCPZ and tree impacts include the 0.27 acre of wetland impacts located within the SCPZ.
3. Reflects living, non-invasive trees that are 6-inch DBH or greater that will be cleared within the SCPZ.

The reduction in the proposed parking area under the Minimal Impact Alternative would reduce the number of trailer parking spaces to 454, as compared to 580 provided in the Preferred Alternative. **This alternative does not provide sufficient trailer parking necessary to support the proposed facility expansion.** Based on the production capacity of the new facility at full build out, it is anticipated that 500 to 600 trailer parking spots would be required. Reducing the trailer parking to 454 spots does not achieve the minimum trailer parking needed for the expansion and will effectively limit the production capacity of the facility.

The minimization of SCPZ impacts under the Minimal Impact Alternative would also have a potential detrimental impact on the safety and structural integrity of the trailer parking area and the proposed facility expansion overall. By precluding the improvement of the existing culvert system, localized flooding of property is likely, as the existing culverts are undersized and blocked by tree roots and debris. Local flooding caused by undersized culverts would potentially impact the proposed trailer parking area, as well as the portions of the proposed facility expansion located north of Stream 2, should the restricted flow cause water to be impounded upstream.

2.3.3 Full Compliance / No Impact Alternative

Further reduction of the SCPZ impacts on the site was determined to not be feasible. Due to the location of the streams on the property and required size and dimensions of the proposed processing and packaging facility, it is not possible implement the proposed project without impacts to Wetland A within the Stream 2 SCPZ. Further, it is not possible to secure the site without impacts to SCPZ to install the proposed perimeter fencing. This could lead to trespassing within the manufacturing facility, which poses a significant safety threat and risk for property damage. Complete avoidance of the onsite SCPZ would impact the development to the extent that the proposed project is no longer viable and would not be implemented on the property.

2.3.4 Comparison of Project Alternatives

As summarized in Table 4, the Preferred Alternative will result in prohibited impacts to 141 linear feet of stream channel and 1.29 acres of SCPZ, including 0.27 acre of wetland. The Minimal Impact Alternative will reduce these impacts by adjusting the proposed southeastern trailer parking area, thereby avoiding 141 linear feet of channel impact and 0.21 acre of SCPZ impact.

**TABLE 4
Comparison of Project Alternatives and Impacts**

Alternative	Permitted Use Impact		Non-Permitted Impact		Remaining Onsite	
	Channel (lf)	SCPZ (ac)	Channel (lf)	SCPZ (ac)	Channel (lf)	SCPZ (ac)
Existing Condition	--	--	--	--	4,046 open 1,231 culvert	10.55
Preferred Plan	90 ¹	0.11	141	1.29 ²	3,870 open 1,407 culvert	9.15
Minimal Plan	90 ¹	0.11	0	1.08 ²	4,011 open 1,266 culvert	9.36
No Impact Plan	0	0	0	0	4,046 open 1,231 culvert	10.55

1. Permanent impact for driveway culvert extension (35 LF) and temporary impact for sanitary connection (55 LF).
2. Includes 0.27 acre of wetland impact.

The layout of the proposed development in the Preferred Alternative maximizes the developable acreage and access on the proposed project site, while still preserving the majority of stream channel and associated SCPZ along the streams. Reducing the proposed stream/SCPZ impacts under the Minimal Impact Alternative would reduce the number of proposed trailer parking spots by 121. The proposed trailer parking provided under the Minimal Impact Alternative does not meet the minimum requirements for the proposed facility, which would have significant impacts on the proposed project investment, job creation and associated payroll and taxes, as discussed further in Section 2.5. The No Impact Alternative is a “no build” alternative, which would maintain the facility in its existing condition, with the elimination of the proposed expansion.

2.4 Impacts to Stormwater Detention and Water Quality

Of the three alternatives, the Preferred Plan has the greatest impervious area, thereby slightly increasing the volume of stormwater runoff as compared to the Minimal Impact Alternative. However, the proposed stormwater management facilities would be designed to comply with the stormwater management and water quality requirements of both the City of Columbus and Ohio EPA. Thus, both the Preferred and Minimal Impact Alternatives would have similar impacts on stormwater detention and water quality.

2.5 Statement of Hardship

The proposed channel and SCPZ impacts under the Preferred Alternative are driven by the need to conform to the building size and dimension requirements for the proposed facility, provide sufficient trailer parking to support the proposed expansion, and adequately secure the property. Under the Preferred Alternative, the proposed project would support a new 445,500-square foot processing and production facility. If authorized, the Preferred Plan for Project Enzo would be an approximately \$340 million investment, including up to \$100-150 million in machinery and equipment costs and \$150-200 million in building costs. The expansion is projected to create an estimated 210 new jobs with an associated payroll of approximately \$16 million, exclusive of benefits. At full build out, subject to various business risks and uncertainties, the proposed project could support up to 400-500 jobs. This would have significant economic benefits to the City of Columbus.

Under the Minimal Impact Alternative, the reduction in available trailer parking would curtail the full production capacity of the proposed expanded facility by approximately 22%. As a consequence, the proposed expansion would be far less cost effective and would support fewer employees. Under the Minimal Impact Alternative, the expansion would be projected to create an estimated 40-50 fewer jobs, with a corresponding reduction in payroll and local taxes. Table 5 summarizes the differences between the Preferred and Minimal Impact Alternatives.

TABLE 5
Comparison of Preferred and Minimal Impact Alternatives

Metric	Preferred	Minimal	Net Change
Stream Impacts (lf)	141	0	-141
SCPZ Impacts (ac)*	1.29	1.08	-0.21
Trailer Parking Spaces	580	454	-126
Project Investment	\$340 million	TBD	TBD
Jobs Created	210	160-170	-40 to 50
Payroll Created	\$16.1 million	±\$12.6 million	-\$3.5 million

* Includes 0.27 ac of wetland impacts.

Under the No Impact Alternative, the proposed expansion would be abandoned and there would be no new jobs created. The community and state would forgo the opportunity for a \$340 million dollar investment, the attendant net economic benefits, and the talent this proposed investment would attract. Full compliance with the Manual would result in a significant hardship to the one of the Columbus region's largest manufacturers and private sector employers. Accordingly, Mars Petcare US requests approval of the variance for the Preferred Plan Alternative.

3.0 MITIGATION

As described in the Manual, adequate mitigation must be provided for impacts to the SCPZ by creating equivalent mitigation that is also within a SCPZ. Additionally, for direct stream impacts, the Manual states that “the applicant must demonstrate that the predicted post-construction QHEI/HHEI will meet or exceed the existing QHEI/HHEI...If a stream is proposed to be enclosed into a storm sewer or otherwise eliminated, then an equivalent impaired stream length elsewhere must be remediated to demonstrate a substantial improvement of its QHEI/HHEI score to a maximum practicable extent.”

The Manual states, “Generally, mitigation SCPZ will be considered equivalent if it performs the same function as the disturbed SPCZ.” It is the City’s preference that mitigation occur on the same site as the SCPZ encroachment, or as close as possible if onsite mitigation is infeasible. The Manual specifies that mitigation should consist of equivalent SCPZ created at the following ratios: 1:1 onsite, 1:1.5 on an adjacent site, and 1:2 in the same HUC-12 watershed.

Under the Preferred Alternative (Exhibit 1), the proposed prohibited use impacts include 141 linear feet of perennial stream and 1.29 acres of SCPZ. A total of 75 living, non-invasive trees with a DBH greater than 6 inches would be removed within the impacted SCPZ. An additional 0.11 acre of SCPZ impact (containing 2 trees) would occur along Stream 1 and Stream 3 to extend/replace a driveway culvert crossing and to connect the proposed expanded facility to the sanitary sewer system, which are permitted activities.

The prohibited use impacts are proposed to be mitigated through a combination of stream channel enhancement and SCPZ revegetation, as detailed in the following sections. In addition, mitigation for the proposed 0.27 acre of jurisdictional wetland impacts would be accomplished via implementation of a wetland shelf within the proposed onsite stormwater basin.

3.1 Stream Channel Enhancement

The proposed stream mitigation project will enhance approximately 1,328 linear feet of onsite perennial stream. The proposed stream enhancement will occur along Stream 2, east of Manor Park Drive and south of the existing plant and proposed expansion area (Exhibit 4). This segment of stream has been historically modified/channelized dating back to the late 1960s to early 1970s in association with the development of the former railyard. More recently, it has been impounded by several beaver dams and other debris blockages. As a consequence, the stream exhibits significant bank erosion and instability. In addition, the beaver dams are reducing the natural storage capacity of the stream channel and floodplain.

The mitigation plan proposes to remove beaver dams and debris blockages from the stream channel, stabilize the stream banks via bioengineering techniques, reestablish forested cover in areas where it is absent, and enhance the existing forested riparian corridor. The riparian reestablishment and enhancement are discussed further under Section 3.2.

The applicant proposes to remove the beaver dams and debris blockages from the stream channel during low flow conditions. Work will occur from the streambank, with no impacts to the stream channel. It is anticipated that once the dams and blockages are removed, and the water level within

the channel returns to normal, portions of the stream banks will be left barren of vegetation. These denuded areas, as well as other areas of eroding stream bank along the mitigation reach, will be planted with willow live stakes. The live stakes will serve to remediate stream bank erosion and provide instream habitat benefits. Without robust vegetative cover, streambanks are prone to erosion during high flow events. The willow live stakes will establish a root mass in the soil, which will help to hold the stream banks in place. In addition, the willow branches will provide overhanging vegetative cover to shade the stream and provide habitat benefits.

3.1.1 Expected Habitat Improvement

EMH&T conducted a HHEI assessment on Stream 2 within the proposed mitigation area (Appendix D). The stream received an HHEI score of 58, indicative of Modified Class II Primary Headwater Habitat. The stream’s maximum pool depth (3 feet) and bankfull width (15 feet) significantly exceed that which would be expected of a headwater stream and differs significantly from its downstream conditions, as the stream has been impounded by beaver dams. These blockages are contributing to the degraded habitat conditions observed in the stream, causing local flooding and exacerbating stream bank erosion.

The proposed restoration of natural flow through this portion of the stream channel will have a beneficial effect on aquatic habitat and water quality, as well as ameliorate local flooding and bank erosion. As noted in the post-enhancement HHEI (Appendix D) and shown below in Table 6, the stream is expected to obtain a post-restoration HHEI score of 62. Removal of the beaver dams and blockages are expected to restore natural pool depths and bankfull width. Additionally, removal of these blockages will improve sediment transport within the stream channel, which is expected to improve the diversity of stream substrate.

**TABLE 6
Expected HHEI Improvement**

Metric	Existing Condition	Post-Enhancement	Net Improvement
Substrate	8	12	+4
Maximum Pool Depth	20	25	+5
Bankfull Width	30*	25	-5
Total HHEI Score	58	62	+4

* The current bankfull width of the stream exceeds 13 feet due to impoundment by beaver dams. The expected bankfull width is 9 to 13 feet, similar to the downstream (eastern) portion of Stream 2. While this results in a decrease in this metric’s score, it is not reflective of degradation of the stream channel.

3.1.2 Comparison of Proposed Impacts and Mitigation

As described in Section 2, Streams 1 and 2, which will be impacted by the proposed project, have been extensively modified by the prior construction of the railroad in the late 1960s and early 1970s. The segments of the streams to be impacted are isolated segments of open stream channel, ranging from 23 feet to 50 feet in length, located between existing culverts. The stream segments have limited potential to support aquatic life or higher stream functions.

As described in Section 3.1.1, the proposed stream enhancement is expected to improve 1,328 linear feet of Stream 1, addressing impairments to the stream channel caused by beaver dams and bank erosion. Stream 1 is expected to receive a post-construction HHEI score of 62, which represents

a lift of +4 points over existing conditions. This mitigation will offset prohibited impacts to 141 linear feet of modified stream channel, **providing a mitigation ratio of more than 9 to 1**. The mitigation will occur on the same site as the project impacts, and is more than equivalent as it has the potential to provide significantly higher functions than the areas impacted.

3.2 SCPZ Enhancement

The proposed SCPZ enhancement includes invasive species removal and native plantings. The existing stream corridor is dominated by bush honeysuckle (*Lonicera* sp.), and also contains autumn olive (*Eleagnus umbellata*), tree-of-heaven (*Ailanthus altissima*), callery pear (*Pyrus calleryana*), and grapevine (*Vitis* sp.). These invasive and noxious species suppress and displace native trees and shrubs with their aggressive growth and dispersal. Moreover, studies have shown that vegetation in riparian zones can have a significant effect on overall stream health. Natural stream vegetation protects against erosion and provides bank stability, provides organic matter, wood and cover for aquatic species, provides nutrient management, and serves as a buffer from nonpoint source pollution. Invasive species, particularly bush honeysuckle, cause direct and indirect impacts to water quality as listed below:

1. Changes in the acidity levels of the soil in the riparian zone;
2. Changes in water chemistry and creation of hypoxic conditions due to faster rates of leaf litter decomposition in the stream channel;
3. Reduced inputs of organic matter and woody debris needed by aquatic species; and
4. Reduced water flow rates due to higher transpiration rates.

The proposed riparian enhancements, as depicted on Exhibit 4, will be conducted over approximately 2.54 acres of SCPZ and an additional 1.28 acres of riparian forest south of the SCPZ. The enhancement activities will include mechanical (cutting) and chemical treatment of invasive and noxious species, followed by planting of native trees and shrubs. The native plantings will serve to reestablish a diverse and functional understory and tree canopy in the riparian corridor. Native trees will be installed at a density of 125 stems per acre, and native understory shrubs will be installed a density of 150 per acre, as detailed on Exhibit 5.

Mars Petcare will place the mitigation SCPZ, along with all remaining onsite SCPZ (9.15 acres total) into in a conservation easement granted to the City of Columbus to ensure its perpetual protection and management. The easement will be recorded with the property deed.

3.2.1 Proposed Tree Replacement

The Manual states that disturbances within the SCPZ resulting from a permitted use “must be mitigated through revegetation/reforestation.” Additionally, for prohibited uses requiring a variance, the *Guidance Document for Applying for a Variance* from the Manual states that the applicant “must provide adequate mitigation by creating equivalent mitigation SCPZ elsewhere. Generally, mitigation SPCZ will be considered equivalent if it performs the same function as the disturbed SPCZ.

In order to quantify the mature trees to be impacted by the proposed project, a tree inventory was conducted as described in Section 1.4 and provided in Appendix C. The applicant proposes that

inventoried living trees (over 6-inch DBH) that must be removed for construction of the Preferred Alternative will be replaced in accordance with the ratios presented in Table 7 below. Dead trees and trees considered invasive per OAC 901:5-30-01 will not be replaced.

**TABLE 7
SCPZ Tree Replacement Ratios**

DBH (inches)	Replacement Ratio
6-12	1:1
>12 to 18	2:1
>18 to 24	3:1
>24	4:1

Based on the results of the tree inventory and the replacement ratios specified in Table 5, a total of 105 trees are needed to replace those to be removed within the impacted portions of the onsite SCPZs. Table 8 summarizes the proposed tree removal and tree replacement for each onsite SCPZ.

**TABLE 8
Summary of Required Tree Replacement**

Impact Area	Tree Impacts*	Tree Replacement (Min. 1-inch CAL)
Prohibited Use		
Stream 1	57	67
Stream 2	15	30
Stream 3	3	6
Permitted Use		
Stream 3	2	2
TOTAL	77	105

*Reflects living, non-invasive trees that are 6-inch DBH or greater

As noted on the Stream Mitigation Details (Exhibit 5), a total of 320 1-inch caliper trees and 390 5-gallon shrubs will be installed within the proposed mitigation area. **This exceeds the required tree replacement by a factor of three.** Moreover, a total of 780 bare root trees and shrubs will be installed within the riparian corridor outside of the mapped SCPZ. All trees and shrubs installed will be native to Ohio, common to Central Ohio and suitable for the solar exposure, hydrologic regime, soil conditions, and other relevant environmental variables present on the site. The species to be installed are listed on Exhibit 5. Plantings shall follow the 10-20-30 rule. This requires that total mitigation plantings not be comprised of any more than 10% of one single species, 20% of one single genus, or 30% of one single family.

3.2.2 Proposed SCPZ Mitigation Ratio

The proposed stream mitigation project will provide for the enhancement of approximately 2.54 acres of SCPZ along Stream 2. Based upon the proposed prohibited SCPZ impacts of 1.29 acres, this provides mitigation at a **ratio of nearly 2 to 1**, exceeding the 1:1 onsite ratio provided by the Manual. This mitigation is more than equivalent, as the mitigation SCPZ will provide much higher functions and value to water quality than the SCPZ to be impacted.

3.3 Wetland Mitigation

In order offset direct impacts to 0.27 acre of wetland, the applicant proposes to (1) enhance 0.16 acre of wetland on the project site; and (2) establish a 0.49-acre wetland shelf within the stormwater basin to be implemented as part of the proposed expansion. The 0.16-acre of wetland enhancement will occur within the remaining portion of Wetland A. This will occur as part of the SCPZ enhancement described above in Section 3.2 and shown on Exhibit 4. Any invasive woody species within the wetland will be treated and removed, and the wetland will be planted with native, hydrophytic trees and shrubs.

The proposed wetland shelf is depicted on Exhibit 6. The wetland shelf will be planted with a high density of native emergent and submergent vegetation. Proposed plantings, as listed on Exhibit 6, will include water plantain (*Alisma subcordatum*), arrow arum (*Peltandra virginica*), pickerelweed (*Pontederia cordata*), common arrowhead (*Sagittaria latifolia*), and white water lily (*Nymphaea odorata*). This vegetation will enhance system efficiency by removing pollutants through vegetative uptake and soil-related processes, as well as provide habitat benefits. The proposed retention basin will provide significant water quality benefits by reducing sediments and attached pollutants. By incorporating a wetland shelf, the basin will support ecologically functional stormwater treatment to mitigate for the water quality impacts to onsite wetlands.

The wetland enhancement (0.16 acre) and wetland shelf (0.49 acre) will mitigate the proposed wetland impacts at a ratio of over 2 to 1. In addition, it should be noted that the applicant has purchased 0.6 acre of wetland mitigation credit from the Green Camp Wetlands Mitigation Bank (located in HUC 05060001) in order to satisfy USACE mitigation requirements.

4.0 CONCLUSIONS

Mars Petcare US requests approval of the Type III Variance for the Preferred Project Alternative for proposed Project Enzo. The proposed prohibited impacts to 141 linear feet of perennial channel and 1.29 acres of SCPZ have been carefully considered, and ultimately determined to be necessary to meet the project's requirements. Reducing or eliminating these impacts would have a significant impact on the proposed project's viability, as described herein.

The mitigation proposed for the Preferred Alternative will be achieved on the proposed project site and includes the enhancement of 1,328 linear feet of onsite perennial stream channel. The stream enhancement will include the removal of beaver dams and blockages to restore nature flow, and installation of live stakes to stabilize the streambanks and provide habitat benefits. The mitigation will include approximately 2.54 acres of invasive species control and native tree and shrub planting within the associated SCPZ, including 0.16 acre of wetland. An additional 1.28 acres of riparian forest outside the SCPZ will also be enhanced.

The mitigation activities will result in a significant ecological lift as compared to the current condition of the segments of Stream 1 and Stream 2 to be impacted. The mitigation will result in a mitigation ratio of more than 9 to 1 for stream channel impacts, and nearly 2 to 1 for SCPZ impacts. Mature trees cleared to accommodate the proposed expansion will be replaced by a factor of three. The proposed mitigation is more than equivalent as the areas to be enhanced will perform significantly higher functions than the areas to be impacted.

EXHIBITS

PHOTOGRAPHS

APPENDIX A:

Delineation of Waters of the U.S.

APPENDIX B:

USACE Approved Jurisdictional Determination

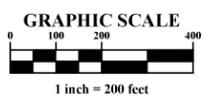
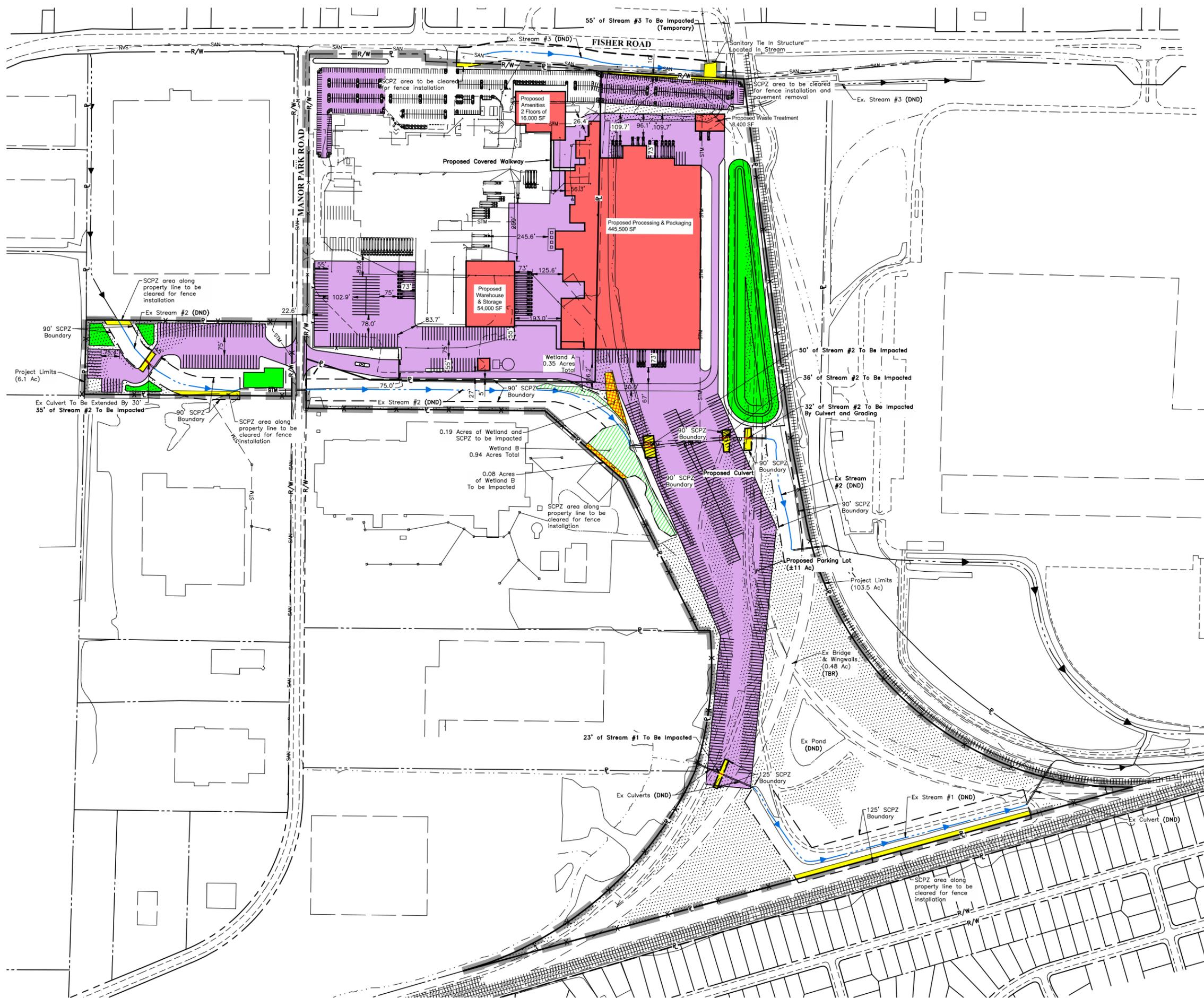
APPENDIX C:
SCPZ Tree Inventory

APPENDIX D:
QHEI and HHEI Dataforms

APPENDIX E:
ORAM Dataform

EXHIBITS

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LEGEND

- Ex Stream (Offsite)
- Ex Stream To Remain
- Ex Stream To Be Impacted (231 LF)
- Ex Trees & Brush (To Be Removed)
- Ex Wetland To Be Impacted (0.27 Ac)
- Ex Wetland To Remain (1.02 Ac)
- SCPZ Impact (1.40 Ac)
- Project Limits (109.6 Ac)
- SCPZ Boundary
- Prop Pavement
- Prop Building
- Prop Retention Basin

TRUCK TRAILER PARKING SUMMARY

East Site	499 Spaces
West Site	81 Spaces
Total	580 Spaces

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT ENZO
 CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO
 STREAM & WETLAND IMPACT EXHIBIT-PREFERRED
 FOR
PROJECT ENZO

EMHT
 Earth & Mechanical, Inc.
 6900 New Albany Road, Columbus, OH 43254
 Phone: 614.775.5500 Fax: 614.775.5505
 emht.com

DATE
November 29, 2022

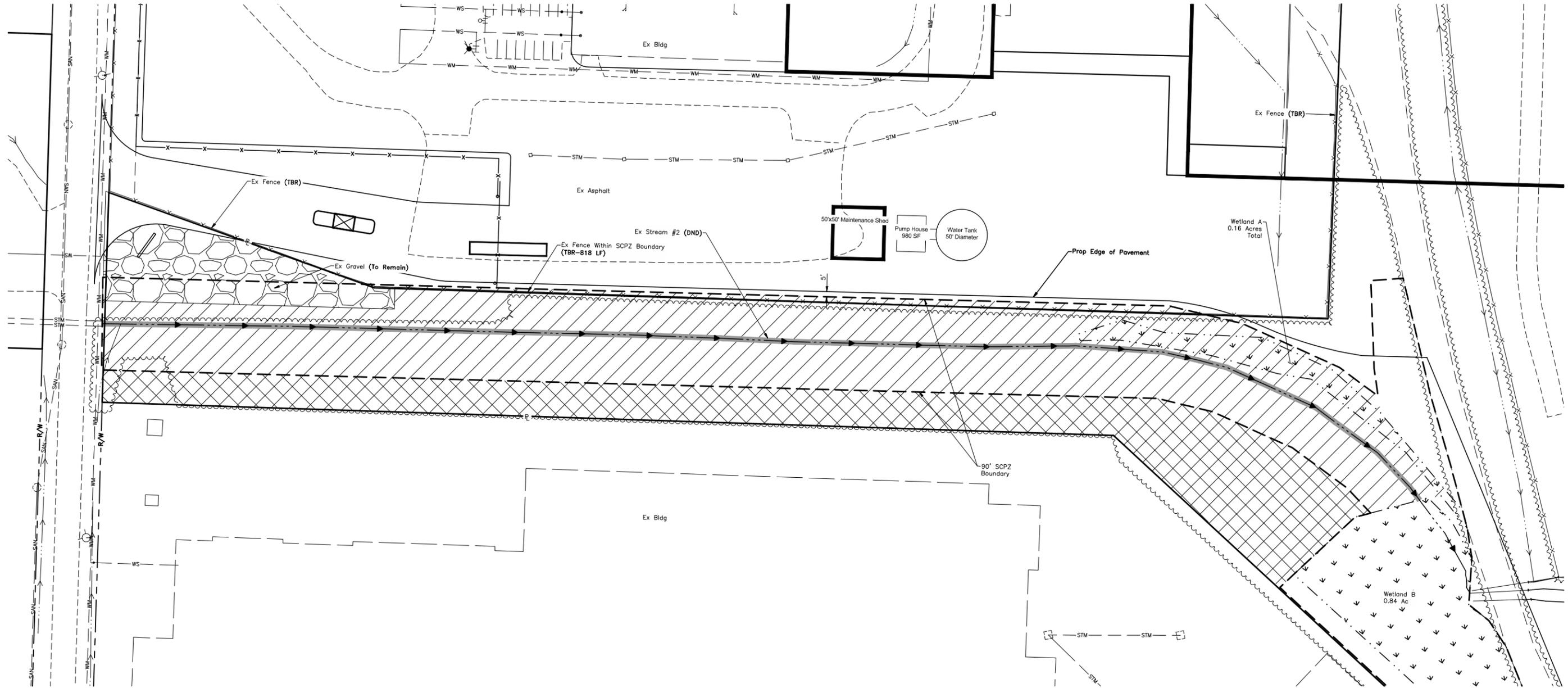
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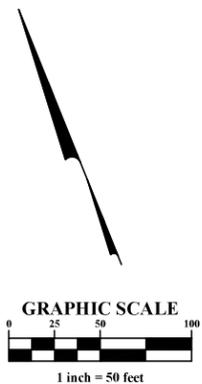
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PRELIMINARY
 NOT TO BE USED FOR
 CONSTRUCTION

PLAN SET DATE
November 29, 2022



LEGEND	
	Ex Stream
	SCPZ Boundary
	Zone 1 Live Stakes (1328 LF)
	Zone 2 Stream & SCPZ Enhancements (2.54 Ac)
	Zone 2A Riparian Enhancement Outside of SCPZ (1.28 Ac)
	Ex Wetland
	Ex Gravel (To Remain)
	Ex Wetland Limits



PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

PLAN SET DATE
 November 29, 2022

MARK	DATE	DESCRIPTION

PROJECT ENZO

CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO
 STREAM MITIGATION
 FOR
PROJECT ENZO

EMHT
 Earth & Mechanical, Inc.
 6900 New Albany Road, Columbus, OH 43254
 Phone: 614.775.5500 | Fax: 614.775.3546
 emht.com

DATE
November 29, 2022

SCALE
1" = 50'

JOB NO.
20210569

SHEET
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PLANTING TABLE							
ZONE	MATERIAL	DENSITY	QUANTITY	MIN CALIPER	MIN MATERIAL HEIGHT	SCHEDULE	WARRANTY
ZONE 1	Willow Live Stakes	2 Rows W/ 2' Spacing	2,656	N/A	2 Feet	Dec 1 - Mar 31	70%
ZONE 2	No. 15 Trees	125 Per Acre	320	1-Inch	5 Feet	Mar 1 - May 15 or Sep 15 - Nov 15	100%
	No. 5 Shrubs	150 Per Acre	390	N/A	24 Inches		100%
ZONE 2A	Bare Root Trees	300 Per Acre	390	N/A	18 Inches	Mar 1 - May 15 or Oct 15 - Nov 30	80%
	Bare Root Shrubs	300 Per Acre	390	N/A	18 Inches		80%

PLANT LIST		
COMMON NAME	SCIENTIFIC NAME	SHADE TOLERANCE
Willow Live Stakes		
Peachleaf willow	<i>Salix amygdaloides</i>	Intolerant
Pussy willow	<i>Salix discolor</i>	Tolerant
Sandbar willow	<i>Salix interior</i>	Intolerant
Black willow	<i>Salix nigra</i>	Intolerant
Riparian Trees & Shrubs		
Trees		
Red maple	<i>Acer rubrum</i>	Intermediate
Sugar maple	<i>Acer saccharum</i>	Tolerant
Ohio buckeye	<i>Aesculus glabra</i>	Tolerant
Pawpaw	<i>Asimina triloba</i>	Tolerant
American sycamore	<i>Platanus occidentalis</i>	Intermediate
Eastern cottonwood	<i>Populus deltoides</i>	Intolerant
Swamp white oak	<i>Quercus bicolor</i>	Intermediate
Bur oak	<i>Quercus macrocarpa</i>	Intermediate
Pin oak	<i>Quercus palustris</i>	Intolerant
Red oak	<i>Quercus rubra</i>	Intermediate
Shrubs		
Serviceberry	<i>Amelanchier laevis</i>	Tolerant
Black chokeberry	<i>Aronia melanocarpa</i>	Tolerant
Buttonbush	<i>Cephalanthus occidentalis</i>	Tolerant
Eastern redbud	<i>Cercis canadensis</i>	Tolerant
Silky dogwood	<i>Cornus amomum</i>	Intermediate
Gray dogwood	<i>Cornus racemosa</i>	Tolerant
Red-osier dogwood	<i>Cornus sericea</i>	Intolerant
American witchhazel	<i>Hamamelis virginiana</i>	Intermediate
Northern spicebush	<i>Lindera benzoin</i>	Intermediate
Elderberry	<i>Sambucus canadensis</i>	Intolerant
Southern arrow-wood	<i>Viburnum dentatum</i>	Intermediate
Nanny-berry	<i>Viburnum lentago</i>	Tolerant
Blackhaw	<i>Viburnum prunifolium</i>	Tolerant

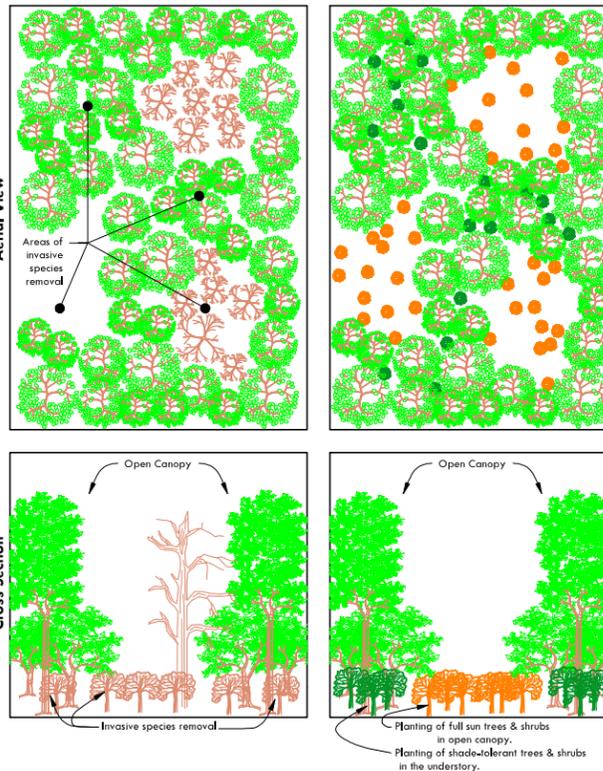
INVASIVE SPECIES REMOVAL

All invasive bush honeysuckle shrubs (*Lonicera* sp.), Callery Pear (*Pyrus calleryana*), and Tree-of-Heaven (*Ailanthus altissima*) saplings and trees within the areas indicated on the exhibit shall be cut near to the ground by hand, leaving a low stump (1-2 inches high). In addition, all grape vines will be traced to area(s) rooted into the ground and cut on both sides of the vine where it is rooted into the ground. No mechanized clearing or grubbing should occur. Remove and dispose of cut material off-site.

Apply water-based glyphosate herbicide (trade name Rodeo, Accord, or approved equal) to the cut surface of shrubs, trees, and vines immediately (within three (3) minutes) after cutting. Apply at least 20% of active ingredient, however a 100 percent solution is recommended for best results, following specifications given on the product label. Application using a hand-held or backpack sprayer, or paintbrush, is advised. Care should be taken not to apply herbicide to adjacent native vegetation.

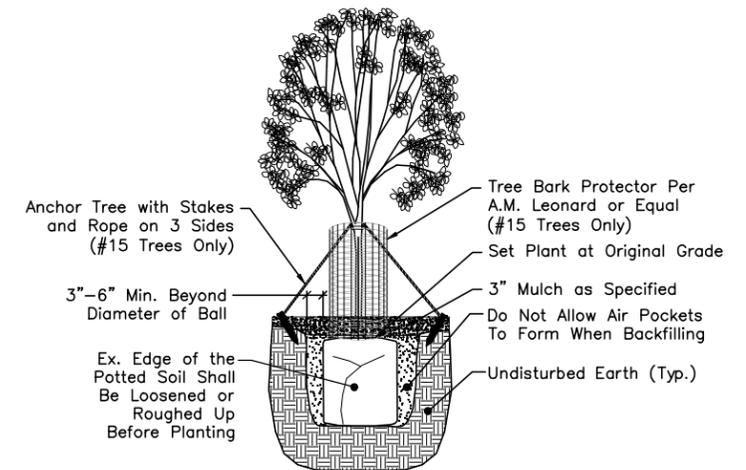
RIPARIAN CORRIDOR IMPROVEMENT (INVASIVE SPECIES REMOVAL)

ENHANCED CONDITIONS (NATIVE PLANTINGS)

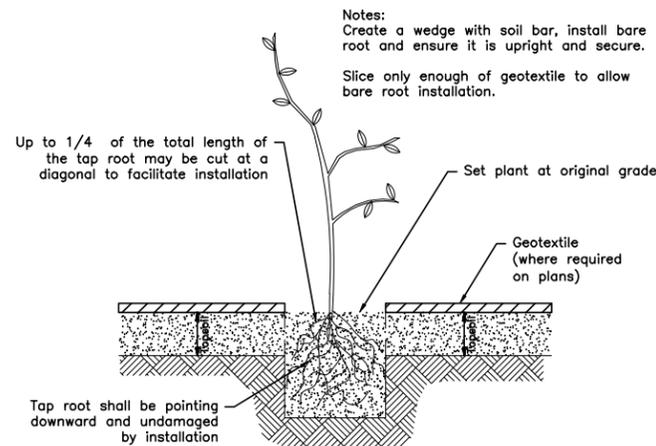


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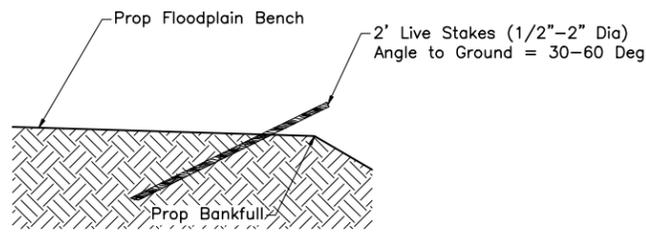
- Invasive species to be removed by cutting and herbicide application as specified above.
- Areas with intact canopy trees (resulting in partial to full shade) will be planted with shade tolerant trees & shrubs.



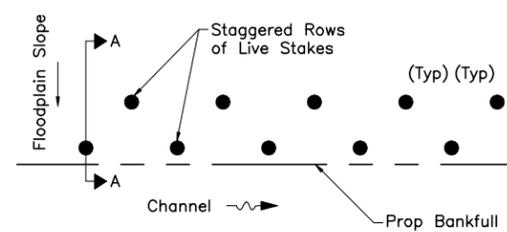
DETAIL #5 AND #15 POTTED PLANTING DETAIL Not to Scale



DETAIL BARE ROOT Not to Scale



DETAIL LIVE STAKE Not to Scale



PLAN VIEW Not to Scale

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

PLAN SET DATE
November 29, 2022

REVISIONS

MARK DATE DESCRIPTION

PROJECT ENZO

CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO
STREAM MITIGATION DETAILS
FOR
PROJECT ENZO

EMHT
Soils, Mechanics, Hydrology & Water, Inc.
Engineers • Surveyors • Planners • Scientists
6900 New Albany Road, Columbus, OH 43254
Phone: 614.775.5500 Fax: 614.775.5505
emht.com

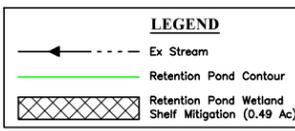
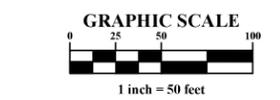
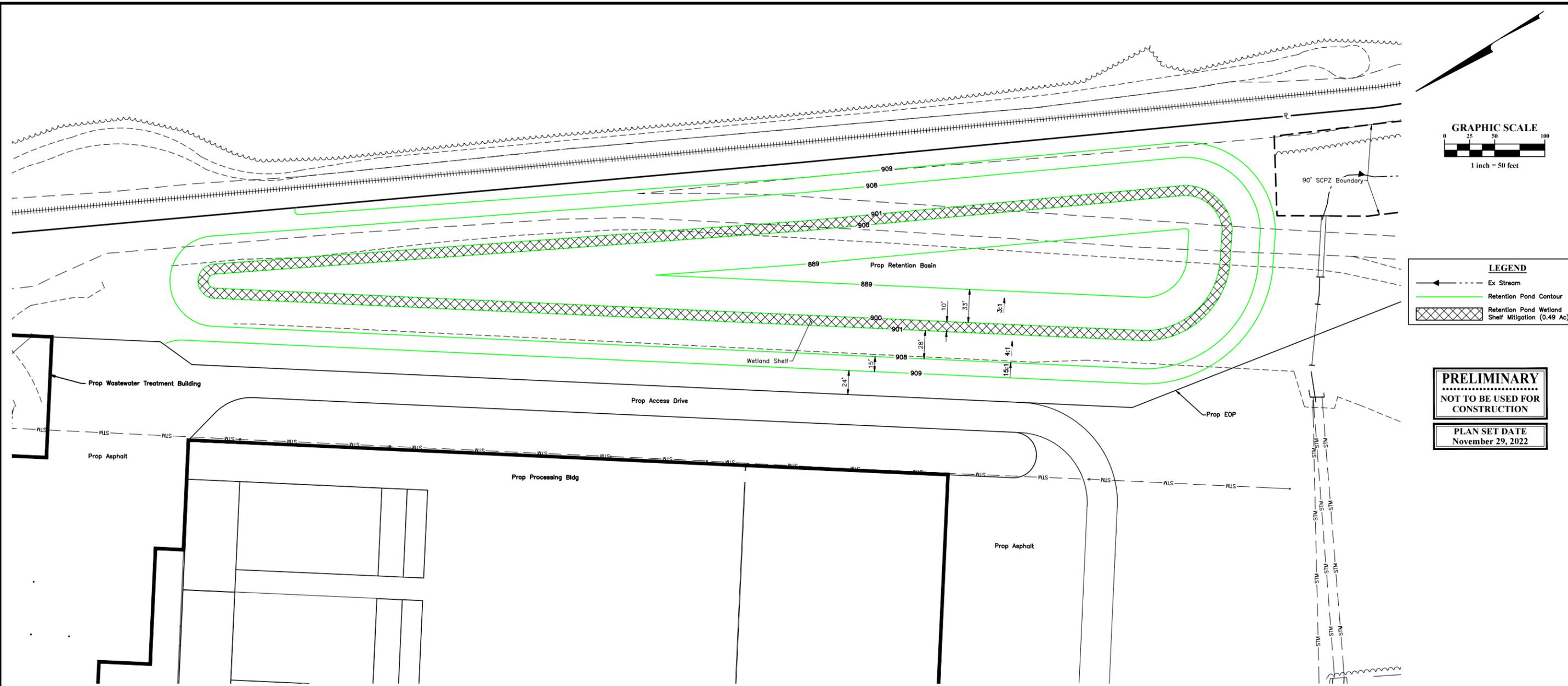
DATE
November 29, 2022

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 NOT TO BE USED FOR
 CONSTRUCTION

PLAN SET DATE
 November 29, 2022

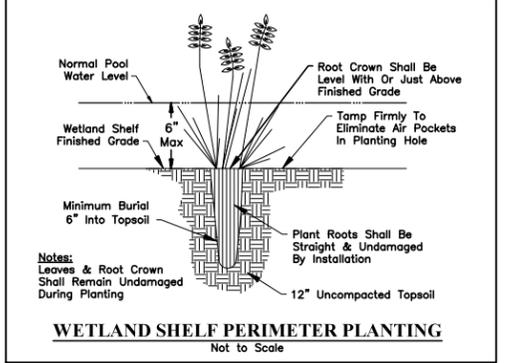
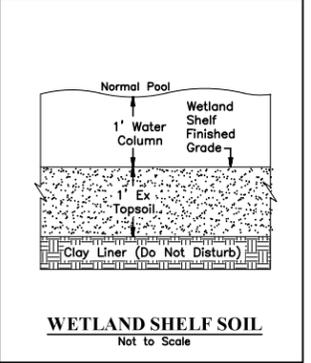
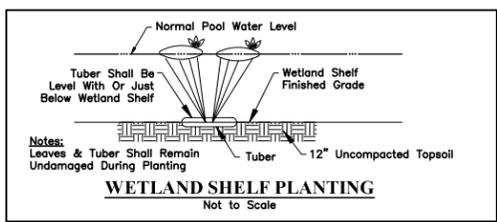
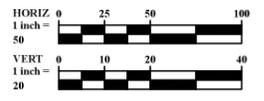
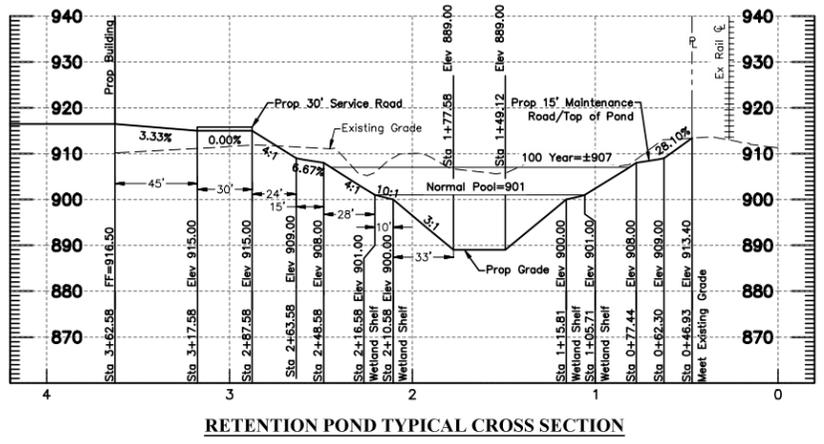
WETLAND PLANTING TABLE				
PLANTING TYPE	COMMON NAME	SCIENTIFIC NAME	SPACING	QUANTITY
Perimeter Plantings*	Common water plantain	<i>Alisma subcordatum</i>	3' OC	200
	Arrow arum	<i>Peltandra virginica</i>	3' OC	200
	Pickernelweed	<i>Pontederia cordata</i>	3' OC	200
	Common arrowhead	<i>Sagittaria latifolia</i>	3' OC	200
Aquatic Planting**	White water lily	<i>Nymphaea odorata</i>	5' x 5'	570

*Perimeter plantings will be installed along the waters edge of the basin in up to a water depth of 6 inches.

**Aquatic plantings will be installed in water depths greater than 6 inches and will be the primary treatment across the shelf.

WETLAND SHELF PLANTING NOTES

1. Landscaper shall have on staff a wetland ecologist familiar with wetland plant installation or have at least 5 years experience with similar projects.
2. Herbaceous material planted within the wetland shelf shall be bare root or potted.
3. Herbaceous material should not be installed until water reaches normal pool elevation and the basin tributary area is fully stabilized. Under no circumstances should wetland plants be installed while the basin is being used for temporary sediment storage during site construction.
4. Herbaceous material shall not be planted beyond May-August window.
5. Under no circumstances should the herbaceous material be installed such that the entire plant is below the water surface except Nyphea.
6. Upon conclusion of basin being used as a temporary sediment basin, the wetland shelf shall be inspected for sediment accumulation and adjusted to proposed grade as needed. A minimum 12" topsoil layer shall be placed throughout the entirety of the wetland shelf.
7. Landscaper shall insure that no cattails are present within the basin during planting and at the end of the first growing season. Hand pulling or chemical control may be necessary.



MARK	DATE	DESCRIPTION

CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO
 WETLAND MITIGATION
 FOR
PROJECT ENZO

EMHT
 Environmental Mitigation & Habitat Treatment, Inc.
 Engineers • Surveyors • Planners • Scientists
 6900 New Albany Road, Columbus, OH 43254
 Phone: 614.775.5500 Fax: 614.775.5505
 emht.com

DATE	November 29, 2022
SCALE	1" = 50'
JOB NO.	20210569
SHEET	5/5

PHOTOGRAPHS



Photograph 1
SCPZ Area 1 along Stream 2, facing east



Photograph 2
SCPZ Area 1 along Stream 2, facing northwest



Photograph 3
SCPZ Area 2 along south side of Stream 2, facing west



Photograph 4
SCPZ Area 3 along Stream 2, facing northwest



Photograph 5
SCPZ Area 3 is visible in the background, looking southwest across Wetland B



Photograph 6
SCPZ Area 4 along Stream 2, looking southwest across Wetland A



Photograph 7
SCPZ Area 4 along Stream 2, looking northwest across Wetland A



Photograph 8
SCPZ Area 5 along Stream 2, looking east across an open section of channel between culverts



Photograph 9
SCPZ Area 5 along Stream 2, looking west across an open section of channel between culverts



Photograph 10
SCPZ Areas 6 and 7 along Stream 2, facing east



Photograph 11
SCPZ Area 8 along Stream 1, facing southwest



Photograph 12
SCPZ Area 9 along Stream 1, facing southeast



Photograph 13
SCPZ Area 9 along Stream 1, facing east



Photograph 14
SCPZ Area 10 along Stream 3, facing east



Photograph 15
SCPZ Area 10 along Stream 3, facing west



Photograph 16
SCPZ Area 10 near proposed Stream 3 impact, facing east



Photograph 17
SCPZ Area 10 near proposed Stream 3 impact, facing west



Photograph 18
SCPZ Area 11 within the portion of the Stream 3 SCPZ that extends onto the subject property, facing west



Photograph 19
SCPZ Area 12 along Stream 2, facing southeast



Photograph 20
SCPZ Area 12, existing culvert on Stream 2, facing west



Photograph 21
Proposed stream mitigation area (Stream 2) at Manor Park Drive, facing east



Photograph 22
Proposed stream mitigation area (Stream 2) looking upstream (west). Stream is impounded and SCPZ is dominated by invasive species.



Photograph 23

Proposed stream mitigation area (Stream 2) looking downstream (east). Stream is impounded and SCPZ is dominated by invasive species.



Photograph 24

Invasive honeysuckle within proposed stream mitigation area SCPZ (Stream 2).



Photograph 25
Eroded stream bank within proposed stream mitigation area (Stream 2).



Photograph 26
Beaver dam within proposed stream mitigation area (Stream 2)

APPENDIX A:

Delineation of Waters of the U.S.



Engineers, Surveyors, Planners, Scientists

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20211145

Mars Petcare Expansion Project (73.04-acres)

Investigation of Waters of the United States

Mars Petcare

November 11, 2021

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PHOTOGRAPHS

1.0 INTRODUCTION

A routine delineation of Waters of the United States, including wetlands, was conducted by EMH&T for the approximately 73.04-acre Mars Petcare Expansion Property located south of Fisher Road, west of Interstate 270, and east of Hilliard-Rome Road in the City of Columbus, Franklin County, Ohio (Exhibit 1). This study was performed at the request of and is for the exclusive use of Mars Petcare.

The subject property consists mainly of an existing railyard, existing stream corridors, and overgrown areas. The approximate center coordinates of the subject property are 39.967905°, -83.132825°. The subject property is located in the Dry Run-Scioto River watershed assessment unit [hydrologic unit code (HUC): 050600011205]. The subject property is regulated by the U.S. Army Corps of Engineers (USACE) Huntington District.

A field investigation of the subject property was conducted on October 26, 2021 and October 27, 2021 by EMH&T environmental scientists. Potential surface water features were identified for confirmation by the USACE. The location and extent of the identified surface water features are summarized in the following sections. The boundaries identified by EMH&T are potential, as only the USACE has the final authority to determine whether a wetland or water is jurisdictional.

2.0 LITERATURE REVIEW

A review was made of available topographic maps, soils maps, floodplain maps, and wetland inventory maps. This information helped determine topography and soil types present on the subject property. It also identified any previously mapped wetlands and whether any portions of the subject property were located within mapped floodways.

2.1 Topographic Features

As shown on Exhibit 2, the elevation of the subject property is mapped between 900 and 920 feet above sea level (National Geodetic Vertical Datum) according to the United States Geological Survey (USGS) 7.5' Series *Galloway, Ohio* quadrangle (USGS, 1994). The topographic map shows a stream flowing west to east near the northern property boundary. A second stream is mapped flowing west to east near the southern property boundary. Relocated and/or channelized streams were observed in the same general corresponding locations during the site visit. An open water pond is mapped in the south-central portion of the subject property. An excavated pond was observed in this location during the site visit. No other drainageways, marsh symbols, or open water ponds are mapped for the subject property.

2.2 Mapped Soils

According to the *Web Soil Survey* for Franklin County, Ohio [Natural Resources Conservation Service (NRCS), 2019], four soil types are mapped for the subject property (Exhibit 3A). The mapped soils are listed in Table 1 along with their hydric status. According to the *Soil Survey of Franklin County, Ohio* (USDA, 1980), one drainageway is mapped flowing west to east near the southern property boundary. This drainageway was observed to correspond to a stream during the site visit. No other drainageways, marsh symbols, or open water ponds were mapped for the subject property.

A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA-NRCS, 2018). “Hydric soils” means that the entire map unit is rated as hydric. “Non-hydric soils” means that the entire map unit is rated as not hydric. “Non-hydric soils with hydric inclusions” indicates non-hydric soils containing hydric inclusions, as shown on Exhibit 3A and indicated in Table 1.

TABLE 1. Hydric Status of Onsite Soils

Mapped Soil Unit	Hydric Status	Hydric Inclusions (%)	Location of Hydric Inclusions
Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes (CrA)	Non-hydric with hydric inclusions	Kokomo, drained (5%)	Depressions
Crosby-Urban land complex, 0 to 2 percent slopes (CsA)	Non-hydric with hydric inclusions	Kokomo (5%)	Depressions
Lewisburg-Crosby complex, 2 to 6 percent slopes (LeB)	Non-hydric with hydric inclusions	Kokomo (15%)	Depressions
Urban land-Celina complex, 2 to 12 percent slopes (Uv)	Non-hydric with hydric inclusions	Kokomo (5%)	Depressions

2.3 Hydrologic Conditions

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) was reviewed for the subject property (FEMA, 2008). The entire subject property lies in Zone X (unshaded), outside of the 500-year floodplain.

The United States Fish and Wildlife Service’s (USFWS) National Wetland Inventory (NWI) map was reviewed for the subject property (USFWS, 2019). As shown on Exhibit 4, three NWI features were mapped for the subject property. One Palustrine Emergent Persistent Temporary Flooded (PEM1A) feature is mapped in the south-central portion of the subject property. This feature corresponded to the location of an excavated pond during the site investigation. One Riverine Intermittent Streambed Seasonally Flooded (R4SBC) feature was mapped near the southern property boundary. This mapped feature corresponded to the location of a relocated/channelized stream during the site investigation. One Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded (R5UBH) feature was mapped near the northern property boundary. This mapped feature corresponded to the location of an off-site relocated and/or channelized stream during the site investigation. A second R5UBH feature was mapped as starting to the east of the subject property, at the outlet of an on-site stream that was observed during the site visit. No other NWI features are mapped for the subject property.

3.0 DELINEATION INVESTIGATION RESULTS

EMH&T environmental scientists conducted a field investigation on October 26, 2021 and October 27, 2021 to identify the location, extent, and quality of wetland and stream features on the subject property. The investigative methodology employed is summarized in Appendix A. As shown on Exhibit 5, two potentially jurisdictional wetlands and two potentially jurisdictional streams were

identified for confirmation by the USACE. In addition, a series of excavated drainage ditches flow along the railyard and railroad tracks on the subject property. A detention basin is also located near the northern property boundary, between the railyard and Fisher Road. The excavated drainage ditches and detention basin were built as part of the railyard and are potentially non-jurisdictional. Pond 1 was also excavated in uplands and is potentially non-jurisdictional. Table 2 lists the extent of the surface water features identified and Table 3 summarizes the jurisdictional classification of each surface water feature, as further described below. The USACE wetland and upland data forms are provided in Appendix B. Photographs of the surface water features are included in the Photographs section.

3.1 Potentially Jurisdictional Features

Federal jurisdiction over various classes of water resources under the Clean Water Act is currently described in regulations (40 CFR 230.3) and USACE guidance (USEPA/USACE, 2008) following the U.S. Supreme Court Decision *Rapanos v. United States*. Among the classes of water resources subject to federal jurisdiction are traditional navigable waters (TNWs); wetlands adjacent to TNWs; non-navigable tributaries of TNWs that are relatively permanent (i.e., typically flow year-round or have continuous flow at least seasonally); and wetlands that directly abut such relatively permanent tributaries.

Further, federal jurisdiction also covers non-relatively permanent waters (non-navigable tributaries that do not typically flow year round or have continuous flow at least seasonally [3 months]), wetlands adjacent to non-relatively permanent waters and wetlands adjacent to but not directly abutting relatively permanent waters when a fact-specific analysis determines these waters have a “significant nexus” with a traditional navigable water. A significant nexus determination must be done in order to prove a non-relatively permanent water has more than an insubstantial or speculative effect on the chemical, physical and/or biological integrity of a downstream traditional navigable water.

Based on this understanding, the following waters identified within the subject property are potentially jurisdictional. However, the definition of Waters of the United States is subject to change, pending ongoing litigation and rule making.

Two potentially jurisdictional wetlands were identified within the subject property. Wetlands A and B are located in the west-central portion of the subject property. These wetlands are potentially jurisdictional as they directly abut Stream 2, a potentially jurisdictional stream. The two wetlands have either formed or have been expanded by the presence of beavers, which have dammed up Stream 2 at numerous locations and have partially blocked the Stream 2 culvert under the railyard. As these two wetlands have been present for a significant period, they have developed necessary wetland characteristics.

Two jurisdictional streams were identified within the subject property. Stream 1 is a perennial stream on the subject property. Stream 1 begins west of the subject property and flows west to east through the southern portion of the subject property. The stream appears to have been relocated by the railroad in the 1970s as part of construction of the tracks running north to the Buckeye Yard. Stream 1 flows into a culvert that carries the flow off-site to the east. Stream 2 is a perennial stream in the central portion of the subject property. Stream 2 begins northwest of the subject property and flows through the subject property. The stream has been channelized and sections have been

culverted as part of the railyard construction in the 1970s and 1980s. Stream 2 flows into a culvert that carries the flow off-site to the east.

One stream was located off-site between the subject property and Fisher Road. This stream is shown on the delineation map as Stream 3. However, this stream is not located on the subject property and is excluded from Tables 2 and 3. Stream 3 has an intermittent flow regime.

**TABLE 2
Extent of Onsite Surface Water Features**

Feature ID	Classification	Potentially Jurisdictional		Potentially Non-Jurisdictional		
		Wetland (ac)	Stream (lf)	Isolated Wetland (ac)	Isolated Pond (ac)	Drainage Ditch (lf)
Wetland A	Emergent	0.35	--	--	--	--
Wetland B	Forested	0.94*	--	--	--	--
Stream 1	Perennial	--	1,353 Open Channel 378 Culvert Pipe	--	--	--
Stream 2	Perennial	--	2,638 Open Channel 853 Culvert Pipe	--	--	--
Pond 1	Excavated	--	--	--	0.96	--
Drainage Ditch Network	Excavated	--	--	--	--	5,704
Total	--	1.29	3,991 Open Channel 1,231 Culvert Pipe	--	0.96	5,704

*Feature continues offsite

TABLE 3
Jurisdictional Classification of Onsite Surface Water Features

Feature ID	Streams			Wetlands				Ponds		Ditch/ Swale
	TNW	RPW	Non-RPW	(A)	(B)	(C)	(D)	Impoundment	Isolated	
Wetland A	--	--	--	--	X	--	--	--	--	--
Wetland B	--	--	--	--	X	--	--	--	--	--
Stream 1	--	X	--	--	--	--	--	--	--	--
Stream 2	--	X	--	--	--	--	--	--	--	--
Pond 1	--	--	--	--	--	--	--	--	0.96	--
Drainage Ditch Network	--	--	--	--	--	--	--	--	--	X

TNW: Traditional Navigable Water

RPW: Relatively Permanent Waters (non-navigable tributaries that flow year-round or at least seasonally [3 months])

Non-RPW: Non-Relatively Permanent Waters (non-navigable tributaries without at least seasonal flow [3 months])

Wetlands:

- (A) Abutting or adjacent to a TNW
- (B) Abutting a RPW
- (C) Located adjacent to a RPW or Non-RPW
- (D) Isolated

3.2 Potential Non-Jurisdictional Features

Pond 1 appears to have been excavated in uplands as part of a railroad project in the 1970s. Pond 1 was not impounded or constructed on-line with a stream. Therefore, Pond 1 is potentially non-jurisdictional.

A network of potentially non-jurisdictional drainage ditches were located in the northern and central portions of the subject property. This ditch network appears on a 1985 Plan Set for the “Proposed M/W Distribution Center at Buckeye Yard A/C I-670”. These plans were for the railyard within the subject property, which was designed and constructed by Consolidated Rail Corp. (Conrail). The ditches appear on these plans and are each labeled as “proposed drainage ditch”.

A detention basin was constructed near the northern property boundary, just north of the railyard. This detention basin also appears on a 1985 Plan Set for the “Proposed M/W Distribution Center at Buckeye Yard A/C I-670”. These plans were for the railyard within the subject property, which was designed and constructed by Consolidated Rail Corp. (Conrail). The basin appears on these plans and is labeled as “Detention Basin”.

A copy of the 1985 Conrail Plan Set is located in Appendix C. The “Proposed Drainage Ditch” and “Detention Basin” labels have been highlighted with red circles, as the labels are small and difficult to read.

4.0 REGULATORY JURISDICTION

Impacts to Waters of the United States (WOTUS), including jurisdictional streams and wetlands, are regulated by the USACE and the U.S. Environmental Protection Agency (USEPA) through Section 404 of the Clean Water Act (33 U.S.C. 1344). Prior to federal authorization for impacts to streams or wetlands, certification must also be obtained from the Ohio EPA as defined in Section 401 of the Clean Water Act (33 U.S.C. 1341). Accordingly, no filling may occur in the potentially jurisdictional



waters described in this document without appropriate permits and authorization from the USACE and Ohio EPA.

5.0 CONCLUSIONS

A routine delineation of Waters of the United States, including streams and wetlands, was conducted and a report was prepared by EMH&T for the Mars Petcare Expansion Property. The approximately 73.04-acre subject property is located south of Fisher Road, west of Interstate 270, and east of Hilliard-Rome Road in the City of Columbus, Franklin County, Ohio. This study was performed at the request of and is for the exclusive use of Mars Petcare.

The results of the delineation identified two potentially jurisdictional wetlands and two potentially jurisdictional streams as potentially jurisdictional waters within the subject property. An excavated pond, a network of drainage ditches, and a detention basin were identified as potentially non-jurisdictional waters within the subject property. The boundaries and jurisdictional status of the surface water features within the subject property are potential until verified by the USACE.

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APPENDIX A:
Investigative Methodology

INVESTIGATIVE METHODOLOGY

Wetlands

According to the Federal Register (1980; 1982), wetlands are defined as *Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.* Potential wetlands located on non-agricultural lands are identified using the 1987 Wetland Delineation Manual (Environmental Laboratory, 1987) for confirmation by the U.S. Army Corps of Engineers (USACE).

Under normal site conditions, all three (3) indicators of jurisdictional wetlands including the presence of hydrophytic macrophytes, hydric soils and certain hydrologic indicators must be identified to meet the criteria for a jurisdictional wetland (Environmental Laboratory, 1987). As such, identification of potential wetlands requires characterization of plant community types, identification of hydric soils, and hydrologic indicators for each community type.

For all potential wetland areas, dominant species in the tree, sapling, shrub, woody vine, and herb layers are determined, in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, Version 2.0* (USACE, 2010). Recorded vegetative data consists of herbs with the greatest percentage of aerial cover within 5' of the plot center. Within a 15' radius of the plot center, saplings and shrubs with the greatest height are recorded. Within a 30' radius of the plot center, trees with the largest relative basal area and woody vines with the greatest number of stems are recorded. Species within each of these layers are listed on data forms in order of dominance.

Dominance is determined for each stratum individually. Dominant species include those that comprise 50 percent of the total dominance measure for a stratum, plus any additional species comprising 20 percent or more of the total dominance measure of a stratum. Hydrophytic vegetation is determined to be present when more than 50 percent of the dominants in a sample area are listed as facultative (FAC), facultative wetland (FACW) or obligate wetland (OBL) plants according to Lichvar (2016).

Where possible, soil data are collected by digging a test pit to a maximum depth of 20" to determine the presence of hydric soil. Soil matrix and mottle colors are identified using a Munsell Soil Color Chart (Macbeth, Revised 1994). Evidence of any hydric soil characteristics and evidence of the presence of wetland hydrology are also recorded.

The boundaries of areas that meet all three (3) wetland criteria are identified and measured in the field. Points at which dominant vegetation species changes from wetland to upland, where soils change from hydric to non-hydric, or where indicators of wetland hydrology are no longer observed are noted. The characteristics of each community type are recorded on dataforms and sample points are chosen to represent both an identified potential wetland and its surrounding upland community. All potential wetlands delineated in the field are marked with flagging and mapped using a Trimble GeoXH GPS unit. The dominant vegetation, soils, and indicators of wetland

hydrology are described on delineation forms. Wetland communities are classified according to the classification scheme of Cowardin et al. (1979).

Wetlands are further classified using the Ohio Rapid Assessment Method (ORAM) Version 5 (OEPA, 2001). The ORAM seeks to determine whether wetlands are rated as Category 1, 2, or 3 based on the State of Ohio Wetland Water Quality Standards. Category 1 wetlands exhibit limited quality, function, or value. Category 2 wetlands exhibit moderate quality, function, or value; this includes wetlands that have been degraded but have reasonable potential for restoration (Modified Category 2). Category 3 wetlands are wetlands of superior quality, function, or value.

Streams

The centerline of the streams are mapped for their entire length found on-site using a Trimble® GPS unit. Ordinary High Water Marks (OHWM), which define the outermost regulatory boundaries of streams and open waters, are flagged and mapped using the GPs unit.

Streams are classified as ephemeral, intermittent, or perennial based on site observations, and are assigned a regulatory classification according to the most recent USACE guidance. Streams are also assessed using the Ohio EPA's Qualitative Habitat Evaluation Index (QHEI) and/or Headwater Habitat Evaluation Metric (HHEI). Assessment locations are placed in representative reaches of the streams within the assessment area.

The QHEI is used for streams with drainage areas greater than one (1) square mile and pools with maximum water depths greater than 15.75 in (40 cm) (Ohio EPA 2006). QHEI scoring is based on substrate types, in-stream cover, channel morphology, riparian quality and bank erosion, pool/glide and riffle/run quality, and gradient. These metrics reflect stream habitat features that are correlated with the potential to attain the aquatic life use designation for Ohio streams.

Streams that do not meet these requirements are assessed using the HHEI (Ohio EPA, 2012). HHEI scoring is based on three (3) parameters that are associated with habitat quality in small headwater streams: substrate type, maximum pool depth and bankfull width. Using the HHEI scoring system, streams may be categorized as Class I, II or III PHWH with Class III representing high quality, cold water streams, Class II representing warm water streams and Class I representing ephemeral (seasonally dry) streams with limited ecological function.

Open Water Habitat

The boundaries of open water systems (ponds and lakes) are delineated either using recent aerial photography or by flagging boundaries in the field and locating them using a GPS unit.

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APPENDIX B

USACE Wetland & Upland Dataforms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Mars Petcare Expansion Property City/County: Columbus/ Franklin Sampling Date: 10/27/2021
 Applicant/Owner: Mars Petcare State: OH Sampling Point: W-A-12
 Investigator(s): Eric Nagy, EMH&T Section, Township, Range: _____
 Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): _____ Lat: 39.969043° Long: -83.133694° Datum: _____
 Soil Map Unit Name: CsA NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: Beaver have altered the wetland's hydrology.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: right;">Total % Cover of:</td> <td style="width:50%; text-align: left;">Multiply by:</td> </tr> <tr> <td>OBL species <u>85</u></td> <td>x 1 = <u>85</u></td> </tr> <tr> <td>FACW species <u>30</u></td> <td>x 2 = <u>60</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>115</u> (A)</td> <td><u>145</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>1.26</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>85</u>	x 1 = <u>85</u>	FACW species <u>30</u>	x 2 = <u>60</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>115</u> (A)	<u>145</u> (B)	Prevalence Index = B/A = <u>1.26</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>85</u>	x 1 = <u>85</u>																			
FACW species <u>30</u>	x 2 = <u>60</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>115</u> (A)	<u>145</u> (B)																			
Prevalence Index = B/A = <u>1.26</u>																				
1. <u>Cornus sericea</u>	<u>15</u>	Yes	FACW																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
<u>Herb Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Typha angustifolia</u>	<u>20</u>	Yes	OBL																	
2. <u>Leersia oryzoides</u>	<u>50</u>	Yes	OBL																	
3. <u>Schoenoplectus tabernaemontani</u>	<u>5</u>	No	OBL																	
4. <u>Carex spp.</u>	<u>15</u>	No	FACW																	
5. <u>Eupatorium perfoliatum</u>	<u>10</u>	No	OBL																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
=Total Cover																				
<u>Woody Vine Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
=Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: W-A-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 4/1	90	10YR 5/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ? Coast Prairie Redox (A16)
- Iron-Manganese Masses (F12)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): 6
 Water Table Present? Yes No Depth (inches): 6
 Saturation Present? Yes No Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Mars Petcare Expansion Property City/County: Columbus/ Franklin Sampling Date: 10/27/2021
 Applicant/Owner: Mars Petcare State: OH Sampling Point: U-A-12
 Investigator(s): Eric Nagy, EMH&T Section, Township, Range: _____
 Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): _____ Lat: 39.968932° Long: -83.133732° Datum: _____
 Soil Map Unit Name: CsA NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>15</u></td> <td>x 2 = <u>30</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>70</u></td> <td>x 4 = <u>280</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>85</u> (A)</td> <td><u>310</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.65</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>15</u>	x 2 = <u>30</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>70</u>	x 4 = <u>280</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>85</u> (A)	<u>310</u> (B)	Prevalence Index = B/A = <u>3.65</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>15</u>	x 2 = <u>30</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>70</u>	x 4 = <u>280</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>85</u> (A)	<u>310</u> (B)																			
Prevalence Index = B/A = <u>3.65</u>																				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Juniperus virginiana</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
<u>Herb Stratum</u> (Plot size: _____)																				
1. <u>Carex spp.</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Andropogon virginicus</u>	<u>50</u>	<u>Yes</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
=Total Cover																				
<u>Woody Vine Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
=Total Cover																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Mars Petcare Expansion Property City/County: Columbus/ Franklin Sampling Date: 10/27/2021
 Applicant/Owner: Mars Petcare State: OH Sampling Point: W-B-16
 Investigator(s): Eric Nagy, EMH&T Section, Township, Range: _____
 Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): _____ Lat: 39.968235° Long: -83.133536° Datum: _____
 Soil Map Unit Name: CsA NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: Beaver have altered the wetland's hydrology.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																																	
1. <u>Populus deltoides</u>	10	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																																
2. <u>Fraxinus pennsylvanica</u>	5	Yes	FACW																																	
3. <u>Salix nigra</u>	5	Yes	OBL																																	
4. _____																																				
5. _____																																				
	20	=Total Cover																																		
Sapling/Shrub Stratum (Plot size: _____)																																				
1. <u>Cornus sericea</u>	60	Yes	FACW	Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td></td> <td style="text-align: right;">Multiply by:</td> <td></td> </tr> <tr> <td>OBL species</td> <td style="text-align: center;">95</td> <td>x 1 =</td> <td style="text-align: center;">95</td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;">75</td> <td>x 2 =</td> <td style="text-align: center;">150</td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;">10</td> <td>x 3 =</td> <td style="text-align: center;">30</td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;">0</td> <td>x 4 =</td> <td style="text-align: center;">0</td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;">0</td> <td>x 5 =</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;">180 (A)</td> <td></td> <td style="text-align: center;">275 (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A =</td> <td></td> <td style="text-align: center;">1.53</td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	95	x 1 =	95	FACW species	75	x 2 =	150	FAC species	10	x 3 =	30	FACU species	0	x 4 =	0	UPL species	0	x 5 =	0	Column Totals:	180 (A)		275 (B)	Prevalence Index = B/A =			1.53
Total % Cover of:		Multiply by:																																		
OBL species	95	x 1 =	95																																	
FACW species	75	x 2 =	150																																	
FAC species	10	x 3 =	30																																	
FACU species	0	x 4 =	0																																	
UPL species	0	x 5 =	0																																	
Column Totals:	180 (A)		275 (B)																																	
Prevalence Index = B/A =			1.53																																	
2. <u>Salix interior</u>	10	No	FACW																																	
3. _____																																				
4. _____																																				
5. _____																																				
	70	=Total Cover																																		
Herb Stratum (Plot size: _____)																																				
1. <u>Typha angustifolia</u>	80	Yes	OBL	Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																
2. <u>Leersia oryzoides</u>	10	No	OBL																																	
3. _____																																				
4. _____																																				
5. _____																																				
6. _____																																				
7. _____																																				
8. _____																																				
9. _____																																				
10. _____																																				
	90	=Total Cover																																		
Woody Vine Stratum (Plot size: _____)																																				
1. _____				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																																
2. _____																																				
		=Total Cover																																		

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W-B-16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 4/1	90	10YR 5/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ? Coast Prairie Redox (A16)
- Iron-Manganese Masses (F12)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): 4
 Water Table Present? Yes No Depth (inches): 4
 Saturation Present? Yes No Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Mars Petcare Expansion Property City/County: Columbus/ Franklin Sampling Date: 10/27/2021
 Applicant/Owner: Mars Petcare State: OH Sampling Point: U-B-16
 Investigator(s): Eric Nagy, EMH&T Section, Township, Range: _____
 Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): _____ Lat: 39.968227° Long: -83.133392° Datum: _____
 Soil Map Unit Name: CsA NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: _____	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																																									
1.	_____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																																								
2.	_____	_____	_____	_____																																									
3.	_____	_____	_____	_____																																									
4.	_____	_____	_____	_____																																									
5.	_____	_____	_____	_____																																									
=Total Cover																																													
Sapling/Shrub Stratum (Plot size: _____)																																													
1.	<u>Lonicera tatarica</u>	40	Yes	FACU	Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Total % Cover of:</th> <th style="width: 10%;"></th> <th style="width: 10%;">Multiply by:</th> <th style="width: 10%;"></th> <th style="width: 10%;"></th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td style="text-align: center;">0</td> <td>x 1 =</td> <td style="text-align: center;">0</td> <td></td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;">0</td> <td>x 2 =</td> <td style="text-align: center;">0</td> <td></td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;">0</td> <td>x 3 =</td> <td style="text-align: center;">0</td> <td></td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;">40</td> <td>x 4 =</td> <td style="text-align: center;">160</td> <td></td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;">20</td> <td>x 5 =</td> <td style="text-align: center;">100</td> <td></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;">60 (A)</td> <td></td> <td style="text-align: center;">260 (B)</td> <td></td> </tr> <tr> <td colspan="2">Prevalence Index = B/A =</td> <td></td> <td style="text-align: center;">4.33</td> <td></td> </tr> </tbody> </table>	Total % Cover of:		Multiply by:			OBL species	0	x 1 =	0		FACW species	0	x 2 =	0		FAC species	0	x 3 =	0		FACU species	40	x 4 =	160		UPL species	20	x 5 =	100		Column Totals:	60 (A)		260 (B)		Prevalence Index = B/A =			4.33	
Total % Cover of:		Multiply by:																																											
OBL species	0	x 1 =	0																																										
FACW species	0	x 2 =	0																																										
FAC species	0	x 3 =	0																																										
FACU species	40	x 4 =	160																																										
UPL species	20	x 5 =	100																																										
Column Totals:	60 (A)		260 (B)																																										
Prevalence Index = B/A =			4.33																																										
2.	<u>Elaeagnus umbellata</u>	15	Yes	UPL																																									
3.	<u>Pyrus calleryana</u>	5	No	UPL																																									
4.	_____	_____	_____	_____																																									
5.	_____	_____	_____	_____																																									
=Total Cover																																													
Herb Stratum (Plot size: _____)																																													
1.	_____	_____	_____	_____	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																								
2.	_____	_____	_____	_____																																									
3.	_____	_____	_____	_____																																									
4.	_____	_____	_____	_____																																									
5.	_____	_____	_____	_____																																									
6.	_____	_____	_____	_____																																									
7.	_____	_____	_____	_____																																									
8.	_____	_____	_____	_____																																									
9.	_____	_____	_____	_____																																									
10.	_____	_____	_____	_____																																									
=Total Cover																																													
Woody Vine Stratum (Plot size: _____)																																													
1.	_____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																																								
2.	_____	_____	_____	_____																																									
=Total Cover																																													
Remarks: (Include photo numbers here or on a separate sheet.)																																													



APPENDIX C

1985 Conrail Plan Set

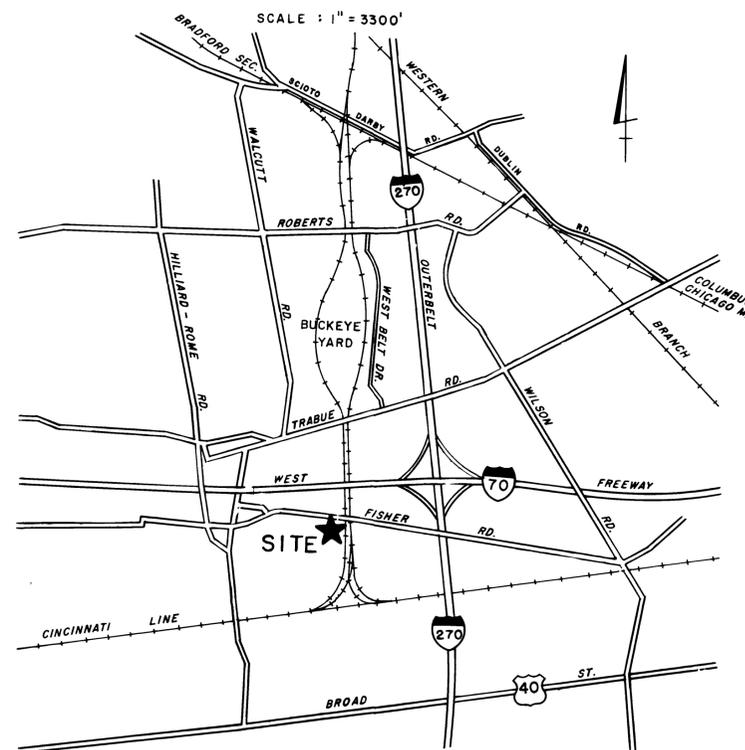
GENERAL NOTES

- 1.) FOR SURVEY INFORMATION, SEE CONRAIL FIELD NOTE BOOKS 187 AND 194 LOCATED IN THE OFFICE OF THE CHIEF ENGINEER - DESIGN & CONSTRUCTION.
- 2.) SURVEY BASELINE HAS IRON PINS SET AT ALL PI'S AND AT STATIONS 0+00, 3+00, 6+00 AND 9+00
- 3.) SOIL BORING DATA IS AVAILABLE FROM THE OFFICE OF THE CHIEF ENGINEER - DESIGN & CONSTRUCTION.
- 4.) ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM. FIELD BENCH MARKS ARE LOCATED AS SHOWN ON THE PLANS.
- 5.) ALL EXISTING TRACK LOCATIONS ON THE CROSS SECTIONS ARE APPROXIMATE.
- 6.) THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS, DATED 1981, INCLUDING ALL SUPPLEMENTS THERETO, SHALL GOVERN ALL CONSTRUCTION ITEMS THAT ARE A PART OF THIS PLAN UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIFICATIONS FOR THIS PROJECT.
- 7.) ANY MODIFICATIONS TO THE STORM SEWER SPECIFICATIONS OR CHANGES TO THE STORM SEWER WORK AS SHOWN ON THE DRAWINGS MUST HAVE PRIOR WRITTEN APPROVAL BY THE ADMINISTRATOR OF THE DIVISION OF SEWERAGE AND DRAINAGE, CITY OF COLUMBUS.
- 8.) THE SEWERS SHOWN ON THIS DRAWING ARE TO BE CONSTRUCTED AS A PRIVATE STORM SYSTEM, THEREFORE, THE CITY WILL NOT ASSUME MAINTENANCE THEREOF AFTER COMPLETION. STANDBY INSPECTION IS MANDATORY DURING CONSTRUCTION.
- 9.) THE CONTRACTOR/OWNER SHALL, PRIOR TO STARTING ANY CONSTRUCTION OPERATION, DEPOSIT WITH THE CITY OF COLUMBUS THE TOTAL ESTIMATED COSTS FOR INSPECTION AND WHERE REQUIRED, A REPAVING GUARANTEE.
- 10.) THE CONTRACTOR SHALL NOTIFY THE FOLLOWING DIVISIONS AT LEAST 24 HOURS IN ADVANCE OF THE ANTICIPATED START OF CONSTRUCTION:
 - DIVISION OF SEWERAGE AND DRAINAGE: 222-8156
 - DIVISION OF CONSTRUCTION: 222-6441
- 11.) THE DETENTION AREAS AS SHOWN ON THIS PLAN ARE A PART OF THE STORM SEWER FACILITIES. THE DEVELOPER/OWNER WILL ASSUME THE RESPONSIBILITY TO MAINTAIN THE PONDING OR DETENTION AREAS IN A WAY AS NOT TO REDUCE THE CAPACITY OF THE WATER STORAGE AREA. IF THE OWNER WILL NOT MAINTAIN THE PONDING OR DETENTION AREAS, THE PLAN WILL BECOME VOID AND THE CITY WILL PLUG THE SEWER AT THE OUTLET.
- 12.) CONTRACTOR SHALL SECURE A WRITTEN PERMIT FROM THE OFFICE OF THE FRANKLIN COUNTY ENGINEER AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK WITHIN THE RIGHT-OF-WAY OF FISHER ROAD.
- 13.) ALL RIP RAP SHOWN ON THE PLANS SHALL CONFORM TO THE REQUIREMENTS OF O.D.O.T. "LOCATION AND DESIGN MANUAL", SECTION 1122, FOR 6" ROCK, TYPE C, 18" DEPTH UNLESS OTHERWISE NOTED.

REFERENCE DRAWINGS FOR THE PROJECT ARE AS FOLLOWS:

ITEM	PUBLICATION	DRAWING OR PLAN NO.
GENERAL	CONRAIL STANDARD MAINTENANCE OF WAY PLANS	AS REQUIRED
CATCH BASIN	O.D.O.T STANDARD DRAWINGS	{ CB-2-2-B { CB-45BA
GUARD RAIL	" " "	GR-2C (TYPE 4)
MANHOLE	" " "	MH-1
DRIVEWAY ENTRANCE	CITY OF COLUMBUS STANDARD DRAWINGS	PLAN 1248, DR. A PLAN 1253, DR. A
HEADWALL	O.D.O.T STANDARD DRAWING	HW-4A
HEADWALL	CONRAIL STANDARD PLANS	43430-R

LOCATION MAP



ITEM (PROPOSAL FORM)	QUANTITY	UNIT	DESCRIPTION
1E	330	C.Y.	RIP RAP
4A	96	L.F.	4" P.V.C. PIPE
4B	16	EACH	4" P.V.C. CONNECTION TO CMP
4C	740	L.F.	12" A.C.C.M.P.
4D	472	L.F.	FRENCH DRAIN
4E	90	L.F.	6" PERF. A.C.C.M.P.
4F	200	L.F.	18" PERF. A.C.C.M.P.
4G	60	L.F.	18" A.C.C.M.P.
4H	200	L.F.	21" PERF. A.C.C.M.P.
4I	184	L.F.	24" PERF. A.C.C.M.P.
4J	1	EACH	6" SADDLE CONNECTION TO 15" CMP
4K	316	L.F.	27" PERF. A.C.C.M.P.
4L	190	L.F.	15" A.C.C.M.P.
4M	150	L.F.	30" PERF. A.C.C.M.P.
4N	69	L.F.	18" R.C.P.
4O	254	L.F.	36" PERF. A.C.C.M.P.
4P	353	L.F.	24" R.C.P.
4Q	75	L.F.	30" A.C.C.M.P.
4R	840	L.F.	29" x 42" A.C.C.M.P. ARCH
4S	70	L.F.	41" x 71" A.C.C.M.P. ARCH
4T	2	EACH	30" C.M. END SECTION
4U	1	EACH	36" C.M. END SECTION
4V	1	EACH	41" x 71" C.M. END SECTION
4W	75	L.F.	15" R.C.P.
4X	8	EACH	R.C. CATCH BASIN W/ XHD FRAME & GRATE
4Y	1	EACH	5'-4" x 11'-2" R.C. CATCH BASIN W/ XHD FRAME & GRATE
4Z	9	EACH	12" C.M. RISER
4AA	1	EACH	36" R.C. MANHOLE W/ HD FRAME & GRATE
4BB	1	EACH	CONC. HEADWALL FOR 15" R.C.P.
4CC	1	EACH	CONC. HEADWALL FOR 29" x 42" A.C.C.M.P. ARCH
4DD	150	L.F.	REMOVE 18" C.M.P.
4EE	124	L.F.	REMOVE 24" C.M.P.

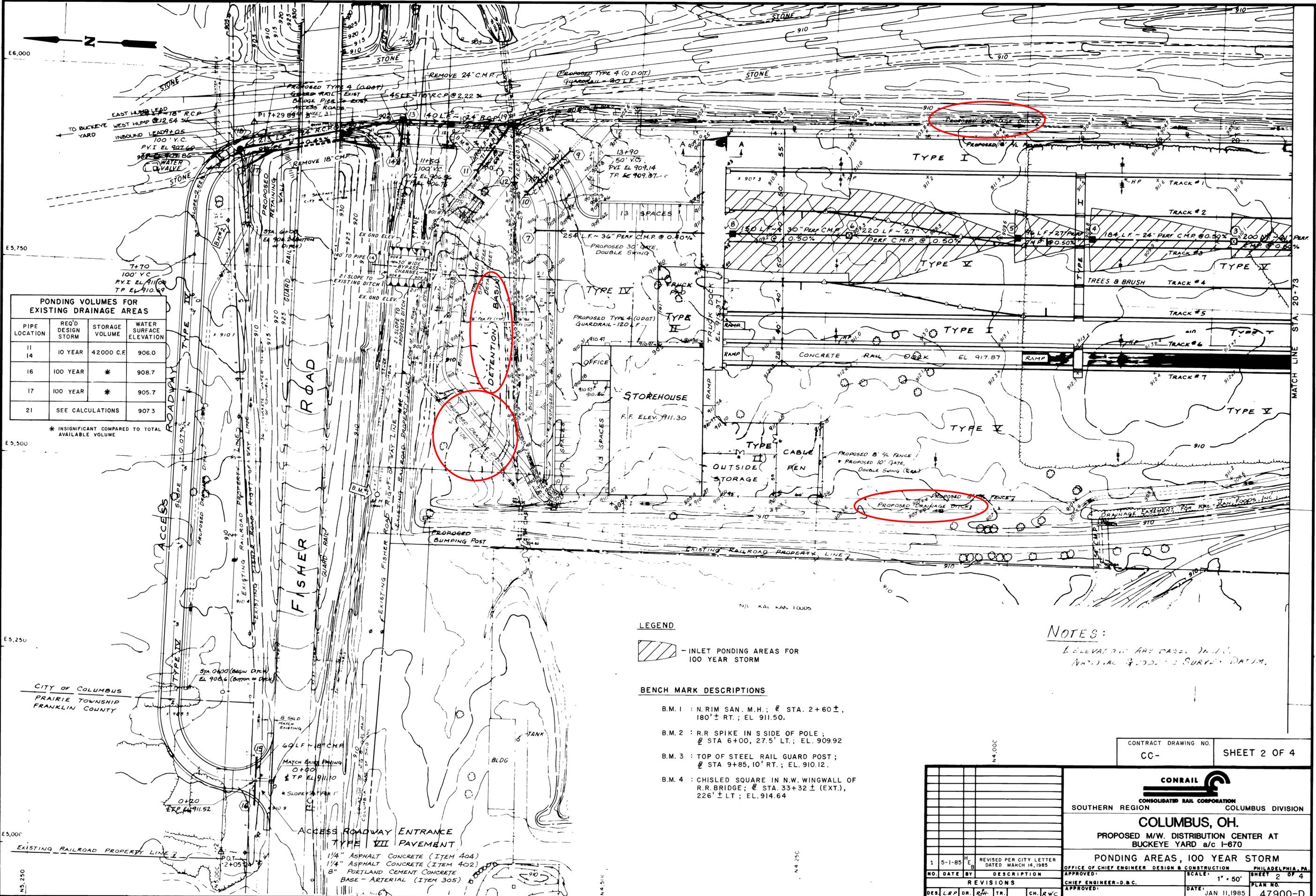
CONTRACT DRAWING NO. CC- SHEET 1 OF 4

PLAN PREPARED BY:
CONSOLIDATED RAIL CORP.
15 NORTH 32ND STREET
PHILADELPHIA, PA. 19104
SEAL
REGISTERED ENGINEER NO DATE

APPROVED FOR STORM SEWERS ONLY:
Roger D. Miller 6-6-85
PRINCIPAL CIVIL ENGINEER, DESIGN DATE
Roger D. Miller 6-7-85
ADMINISTRATOR, DIVISION OF SEWERAGE & DRAINAGE DATE
Mubala Log 6-10-85
DIRECTOR OF PUBLIC UTILITIES AND AVIATION DATE

NO	DATE	BY	DESCRIPTION
1	5-1-85	HEB	REVISED PER CITY LETTER DATED MARCH 14, 1985
REVISIONS			
DES	DR	LRP	TR
		CH	RWC

CONRAIL
CONSOLIDATED RAIL CORPORATION
SOUTHERN REGION COLUMBUS DIVISION
COLUMBUS, OHIO
PROPOSED M/W DISTRIBUTION CENTER AT BUCKEYE YARD 1/4 I-70
GENERAL NOTES
OFFICE OF CHIEF ENGINEER DESIGN & CONSTRUCTION PHILADELPHIA, PA.
APPROVED: SCALE: SHEET 1 OF 4
CHIEF ENGINEER-D & C. NCHIE PLAN NO.
APPROVED: DATE: JAN. 11, 1985 47900-D



PONDING VOLUMES FOR EXISTING DRAINAGE AREAS

PIPE LOCATION	REQ'D DESIGN STORM	STORAGE VOLUME	WATER SURFACE ELEVATION
11	10 YEAR	42000 C.F.	906.0
16	100 YEAR	*	908.7
17	100 YEAR	*	905.7
21	SEE CALCULATIONS		907.3

* INSIGNIFICANT COMPARED TO TOTAL AVAILABLE VOLUME

LEGEND

- INLET PONDING AREAS FOR 100 YEAR STORM

BENCH MARK DESCRIPTIONS

- B.M. 1 : N.RIM SAN. M.H.; @ STA. 2+60 ±, 180' ± RT.; EL. 911.50.
- B.M. 2 : R.R. SPIKE IN S SIDE OF POLE; @ STA 6+00, 27.5' LT.; EL. 909.92
- B.M. 3 : TOP OF STEEL RAIL GUARD POST; @ STA 9+85, 10' RT.; EL. 910.12.
- B.M. 4 : CHISLED SQUARE IN N.W. WINGWALL OF R.R. BRIDGE; @ STA. 33+32 ± (EXT.), 226' ± LT.; EL. 914.64

NOTES:

ELEVATIONS ARE BASED ON N.A.S.D. NATIONAL GEODETIC SURFACE DATUM.

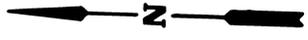
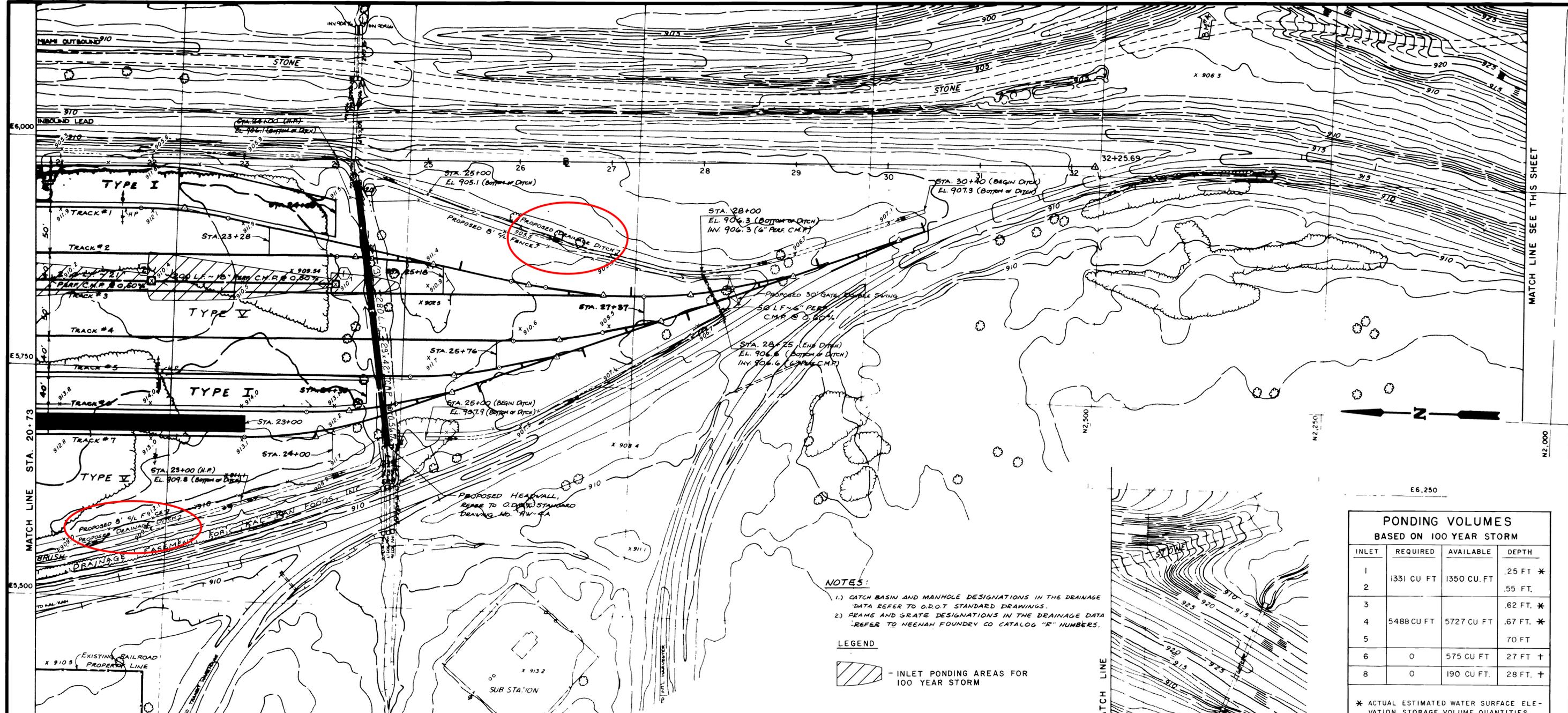
CONTRACT DRAWING NO. CC- SHEET 2 OF 4

CONRAIL
 CONSOLIDATED RAIL CORPORATION
 SOUTHERN REGION COLUMBUS DIVISION
COLUMBUS, OH.
 PROPOSED M/W. DISTRIBUTION CENTER AT
 BUCKEYE YARD a/c I-670
PONDING AREAS, 100 YEAR STORM

NO.	DATE	BY	DESCRIPTION
1	5-1-85	H.E.B.	REVISED PER CITY LETTER DATED MARCH 14, 1985
REVISIONS			
DES.	L.R.P.	DR.	TR.
CH.	R.W.C.		

OFFICE OF CHIEF ENGINEER DESIGN & CONSTRUCTION PHILADELPHIA, PA.
 APPROVED: _____ SCALE: 1" = 50'
 CHIEF ENGINEER-D.B.C. DATE: JAN 11, 1985 SHEET 2 OF 4
 APPROVED: _____ PLAN NO. 47900-D

CC-4990



PONDING VOLUMES
BASED ON 100 YEAR STORM

INLET	REQUIRED	AVAILABLE	DEPTH
1	1331 CU FT	1350 CU FT	.25 FT *
2			.55 FT.
3			.62 FT. *
4	5488 CU FT	5727 CU FT	.67 FT. *
5			70 FT
6	0	575 CU FT	27 FT +
8	0	190 CU FT.	28 FT. +

* ACTUAL ESTIMATED WATER SURFACE ELEVATION STORAGE VOLUME QUANTITIES WERE ESTIMATED FOR CB#2 (USING OVERFLOW FROM CB#1) AND CB#5 (USING OVERFLOW FROM CB#3 AND CB#4).

+ PONDING AT CATCH BASIN CONTROLLED BY INLET GRATE CAPACITY.

- NOTES:**
- 1.) CATCH BASIN AND MANHOLE DESIGNATIONS IN THE DRAINAGE DATA REFER TO O.D.O.T STANDARD DRAWINGS.
 - 2.) FRAME AND GRATE DESIGNATIONS IN THE DRAINAGE DATA REFER TO NEENAH FOUNDRY CO CATALOG "R" NUMBERS.

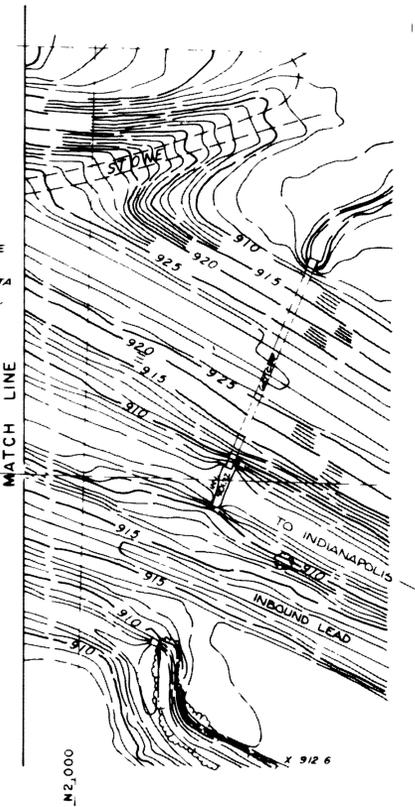
LEGEND

- INLET PONDING AREAS FOR 100 YEAR STORM

DRAINAGE DATA						
NO.	DESCRIPTION	STATION	OFFSET	RIM	INVERT	C.B. TYPE MODIFIED FRAME & GRATE
1	CATCH BASIN	24+00	135' RT.	911.60	909.00 (18")	CB-2-2-B R-3475-1
2	CATCH BASIN	22+00	135' RT.	911.30	908.00 (18") 907.75 (21")	CB-2-2-B R-3475-1
3	CATCH BASIN	20+00	135' RT.	911.00	906.75 (21") 906.50 (24")	CB-2-2-B R-3475-1
4	CATCH BASIN	18+16	135' RT.	910.73	905.58 (24") 905.33 (27")	CB-2-2-B R-3807
5	CATCH BASIN	17+20	135' RT.	910.59	904.85 (27")	CB-2-2-B R-3807
6	CATCH BASIN	15+00	135' RT.	910.26	903.75 (27") 903.50 (30")	CB-2-2-B R-3807
7	FLARED END SECTION	10+96	135' RT.		901.73 (36")	
8	CATCH BASIN	13+50	135' RT.	910.03	902.75 (36") 902.75 (30")	CB-2-2-B R-3807
9	FLARED END SECTION	11+40	32' RT.		902.23 (30")	
10	FLARED END SECTION	10+86	84' RT.		901.93 (30")	
11	FLARED END SECTION	10+18	54.5' RT.		901.40 (ARCH)	
12	CONCRETE HEADWALL	10+68	75' RT.		901.23 (15")	

DRAINAGE DATA						
NO.	DESCRIPTION	STATION	OFFSET	RIM	INVERT	C.B. TYPE MODIFIED FRAME & GRATE
13	CATCH BASIN	9+22	5' LT.	904.70	901.70 (24")	CB-2-2-B R-3475-1
14	END R.C.P.	9+16	40' RT.		902.70 (18")	
15	END C.M.P.	-0+83	40' RT.		908.60 (18")	
16	END C.M.P.	-1+43	40' RT.		908.70 (18")	
17	END R.C.P.	6+72	11.3' LT.		903.88 (18")	
18	MANHOLE	6+96	16.2' LT.	907.56	902.77 (24") 903.27 (18")	MH-1 MH-1
19	MANHOLE	10+62	0.0'	907.50	901.00 (ARCH) 901.00 (24") 901.00 (15")	CB-458A R-1878-49L
20	END C.M.P. MIDDLE CELL	24+23	33.7' RT.		904.84	
21	END C.M.P. MIDDLE CELL (HEADWALL)	24+58	311.5' RT.		906.42	

CONTRACT DRAWING NO. CC - SHEET 3 OF 4



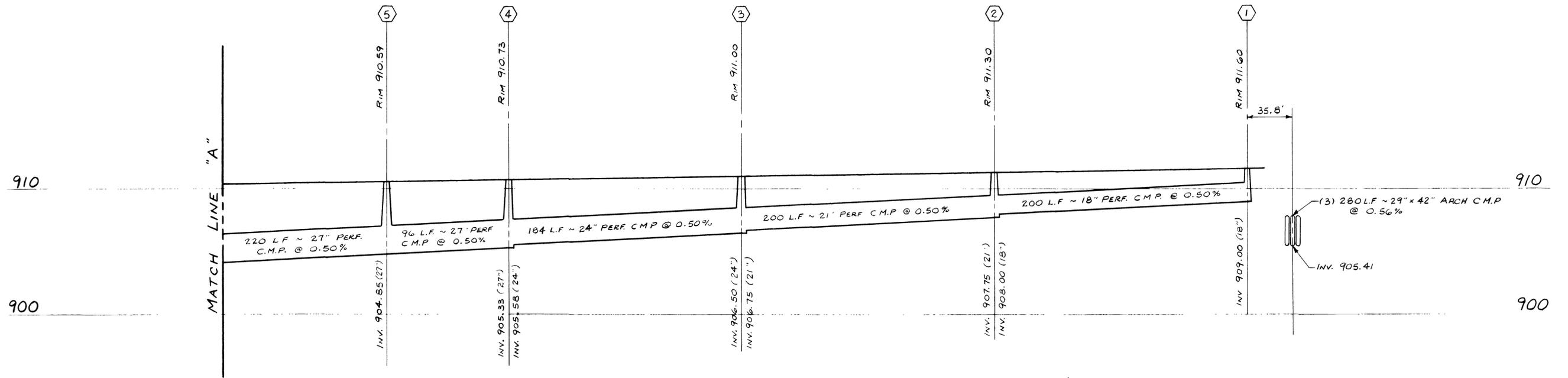
CONRAIL
CONSOLIDATED RAIL CORPORATION
SOUTHERN REGION COLUMBUS DIVISION

COLUMBUS, OH.
PROPOSED M/W. DISTRIBUTION CENTER AT
BUCKEYE YARD a/c I-670

PONDING AREAS, 100 YEAR STORM

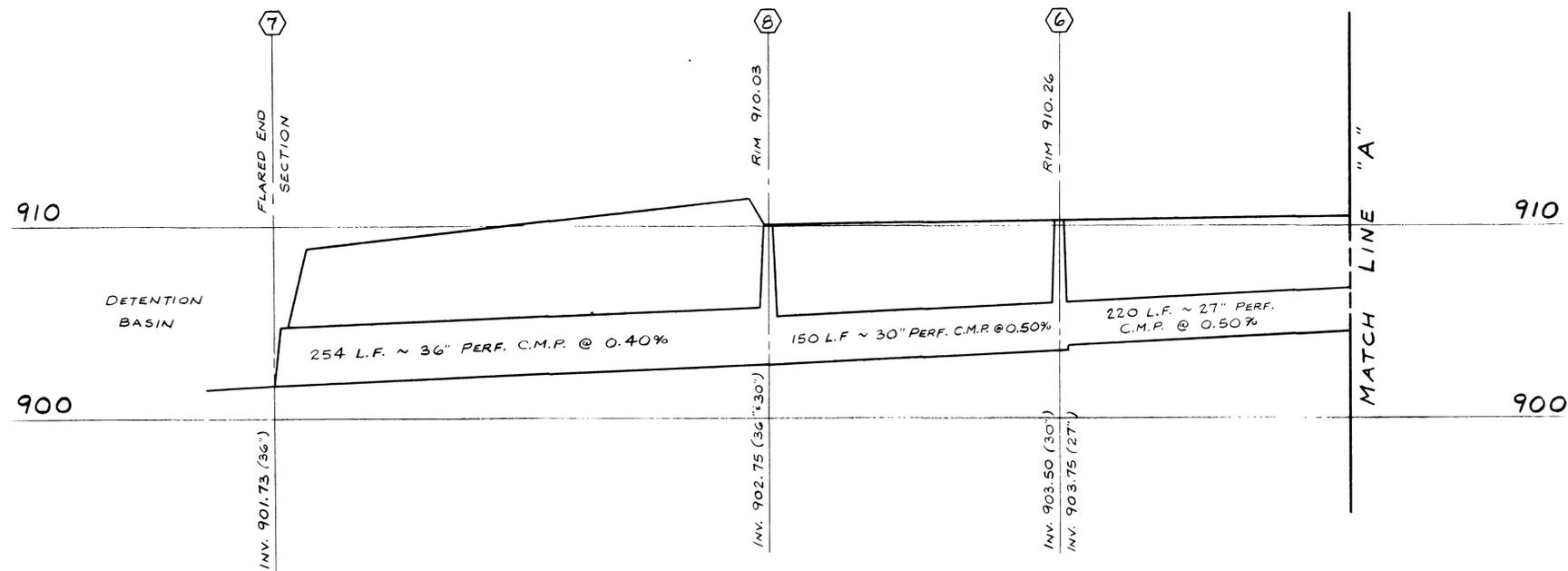
OFFICE OF CHIEF ENGINEER DESIGN & CONSTRUCTION PHILADELPHIA, PA.
APPROVED: [Signature] SCALE: 1" = 50' SHEET 3 OF 4
CHIEF ENGINEER-D.B.C. DATE: JAN. 11, 1985 PLAN NO. 47900-D

1 5-1-85 H.B. REVISED PER CITY LETTER DATED MARCH 14, 1985
NO. DATE BY DESCRIPTION
REVISIONS
DES. L.P. DR. R.H. TR. CH. R.W.C.



DETENTION BASIN SEWER PLAN

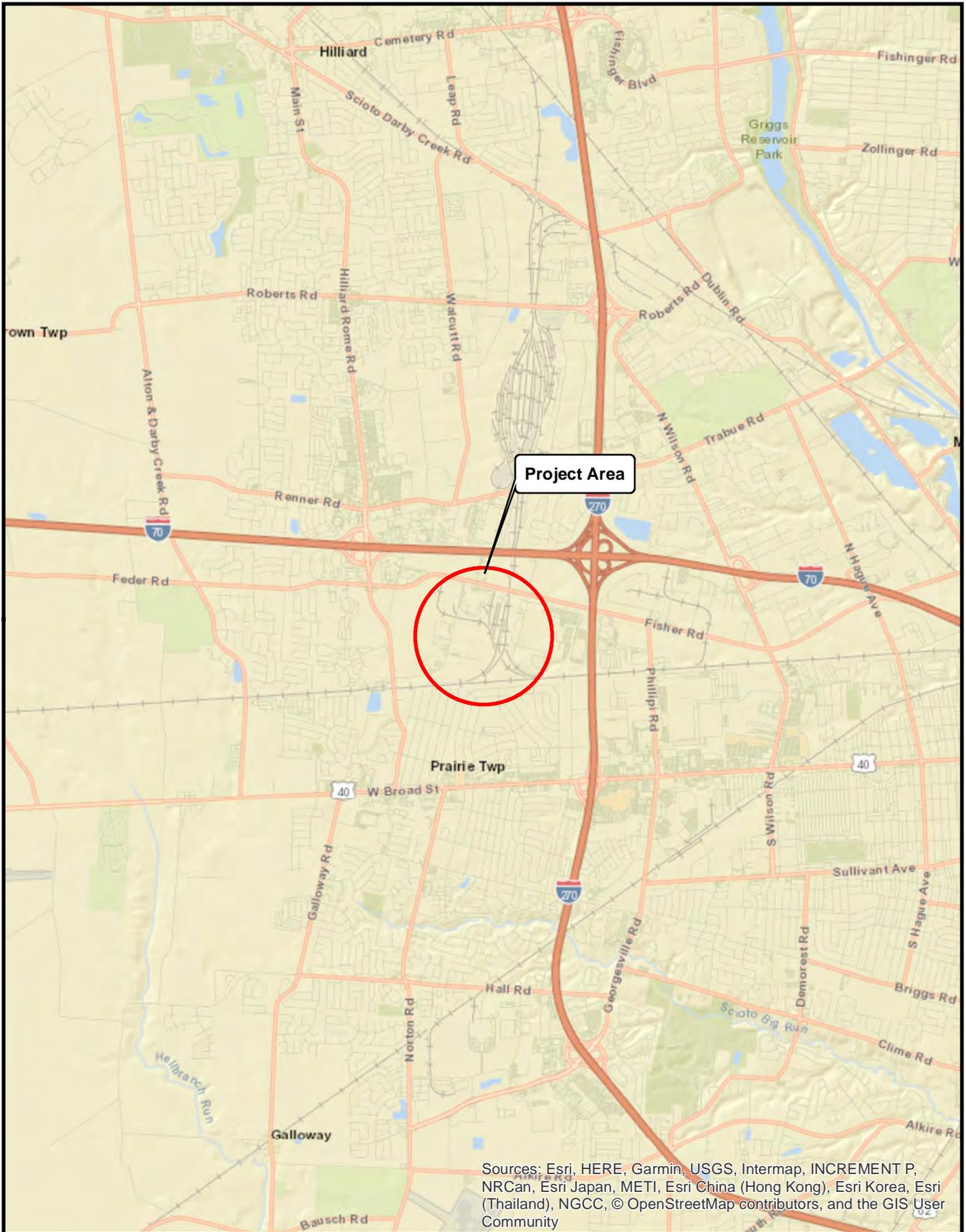
SCALE: 1" = 40' HORIZ
1" = 4' VERT



CONTRACT DRAWING NO. CC - SHEET 4 OF 4

		SOUTHERN REGION		COLUMBUS DIVISION	
		COLUMBUS, OHIO			
PROPOSED M/W DISTRIBUTION CENTER AT BUCKEYE YARD 1/6 I-670		STORM SEWER PROFILE PLAN			
NO.	DATE	BY	DESCRIPTION	APPROVED:	SCALE: AS NOTED
1	5-1-85	H.E.B.	REVISED PER CITY LETTER DATED MARCH 14, 1985	OFFICE OF CHIEF ENGINEER DESIGN & CONSTRUCTION	PHILADELPHIA, PA.
REVISIONS			CHIEF ENGINEER-D.&C.	DATE: JAN. 11, 1985	SHEET 4 OF 4
DES.	R.H.H.	DR.	R.H.H.	TR.	CH. R.W.C.
				APPROVED:	PLAN NO. 47900-D

EXHIBITS



Project Area

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

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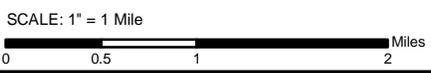


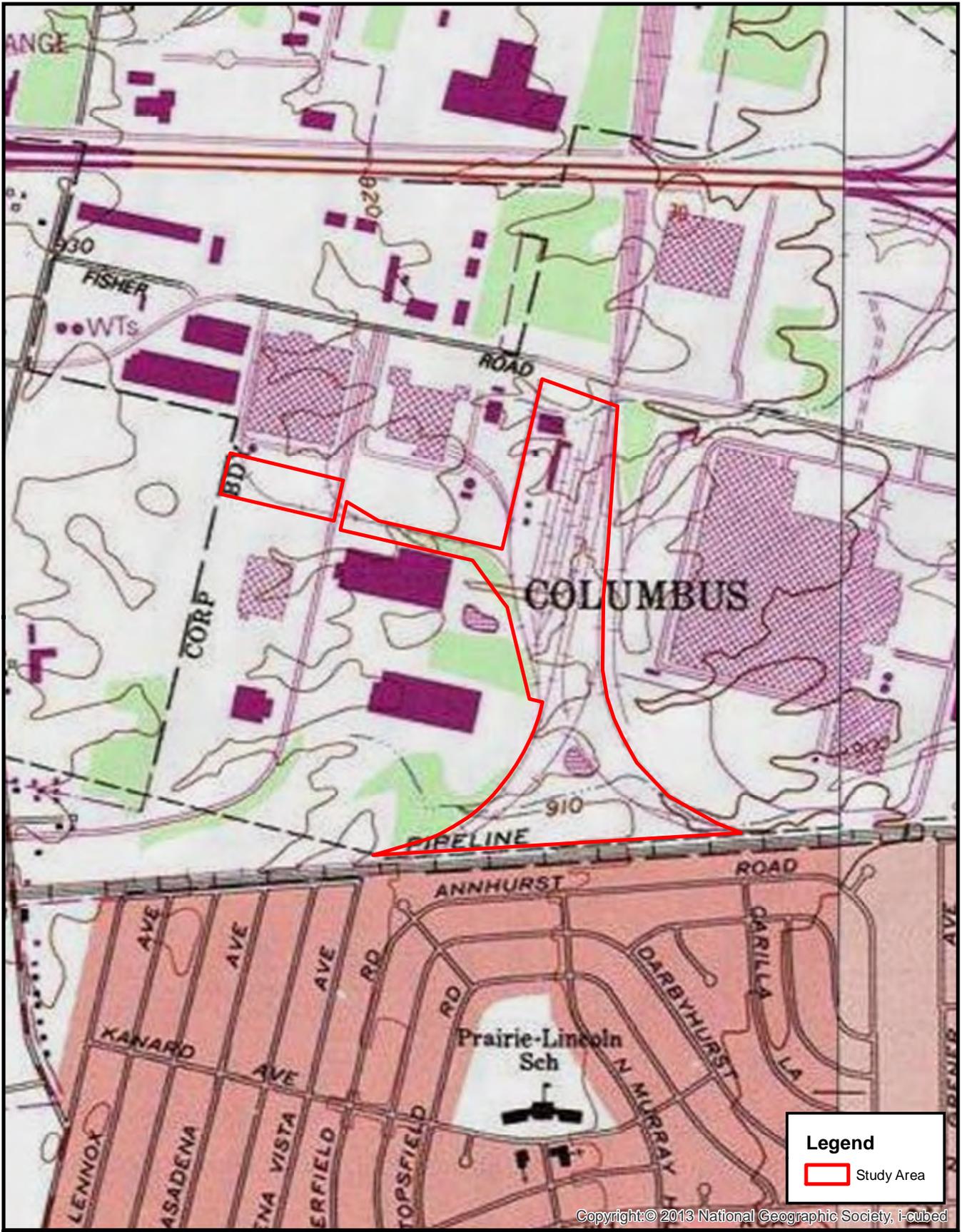
Engineers • Surveyors • Planners • Scientists
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 Phone: 614.775.4500 Toll Free: 888.775.3648

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CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO

**Mars Petcare Plant Expansion
 Location Map
 Exhibit 1**





Path: J:\20211145\GIS\Exhibit 2 - USGS Map.mxd

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CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO

**Mars Petcare Plant Expansion
 USGS Topographic Map
 Exhibit 2**

SCALE: 1" = 1,000'



Source: USGS Galloway Quad Map (Pub. 1994)

Legend
 Study Area



Copyright: © 2013 National Geographic Society, i-cubed



Legend

- Study Area
- Soils
- Hydric
- Non-Hydric with Hydric Components

Path: J:\20211145\GIS\Exhibit 3A - Soils Map.mxd

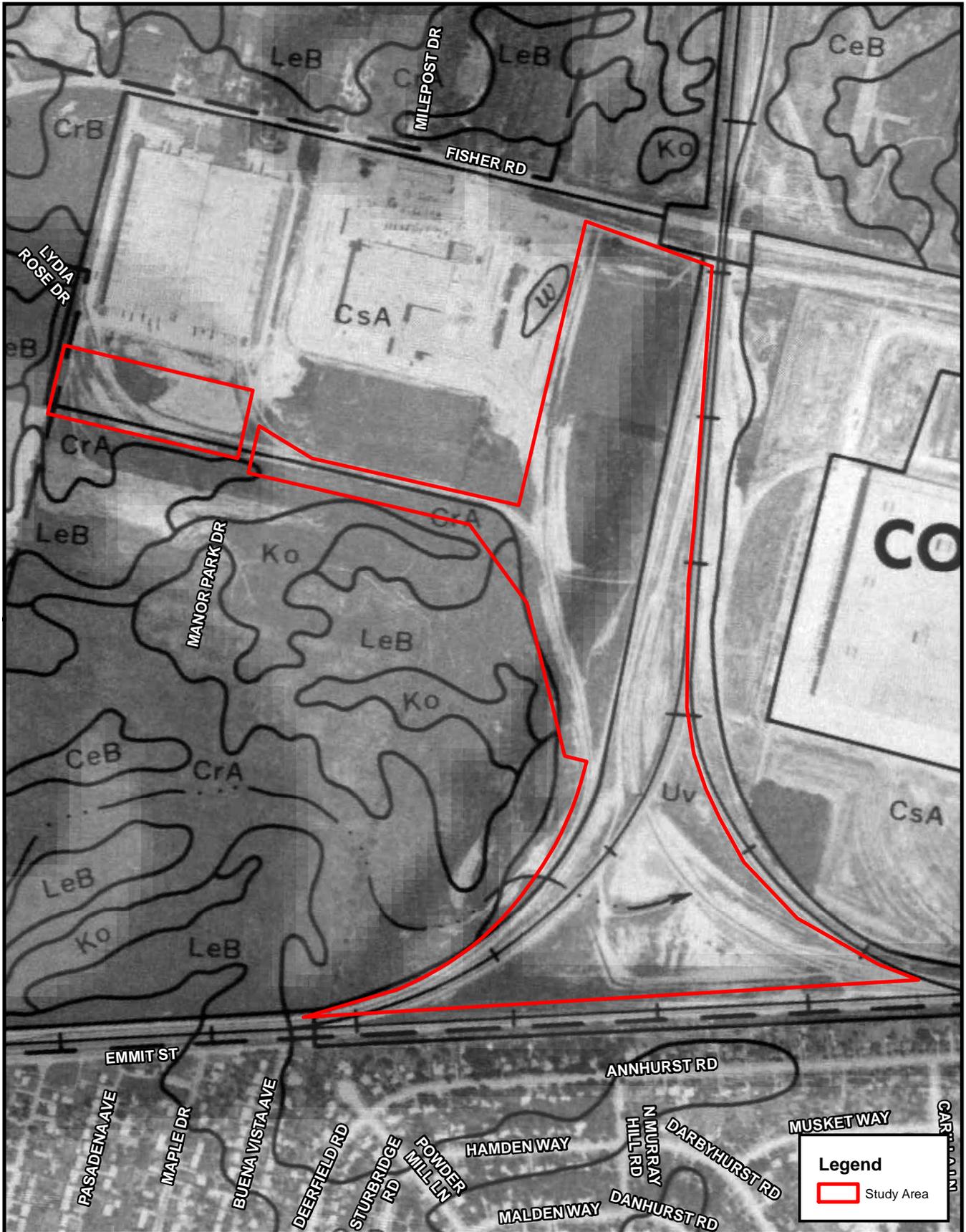
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CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO
Mars Petcare Plant Expansion
Soil Survey Map
Exhibit 3A

SCALE: 1" = 600'

0 305 610 1,220 Feet


 Source: Soils - NRCS, 2019
 Aerial - City of Columbus, 2019



Path: J:\20211145\GIS\Exhibit 3B - Soils Map.mxd

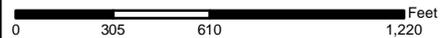


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CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO

**Mars Petcare Plant Expansion
 Historical Soil Survey Map
 Exhibit 3B**

SCALE: 1" = 600'

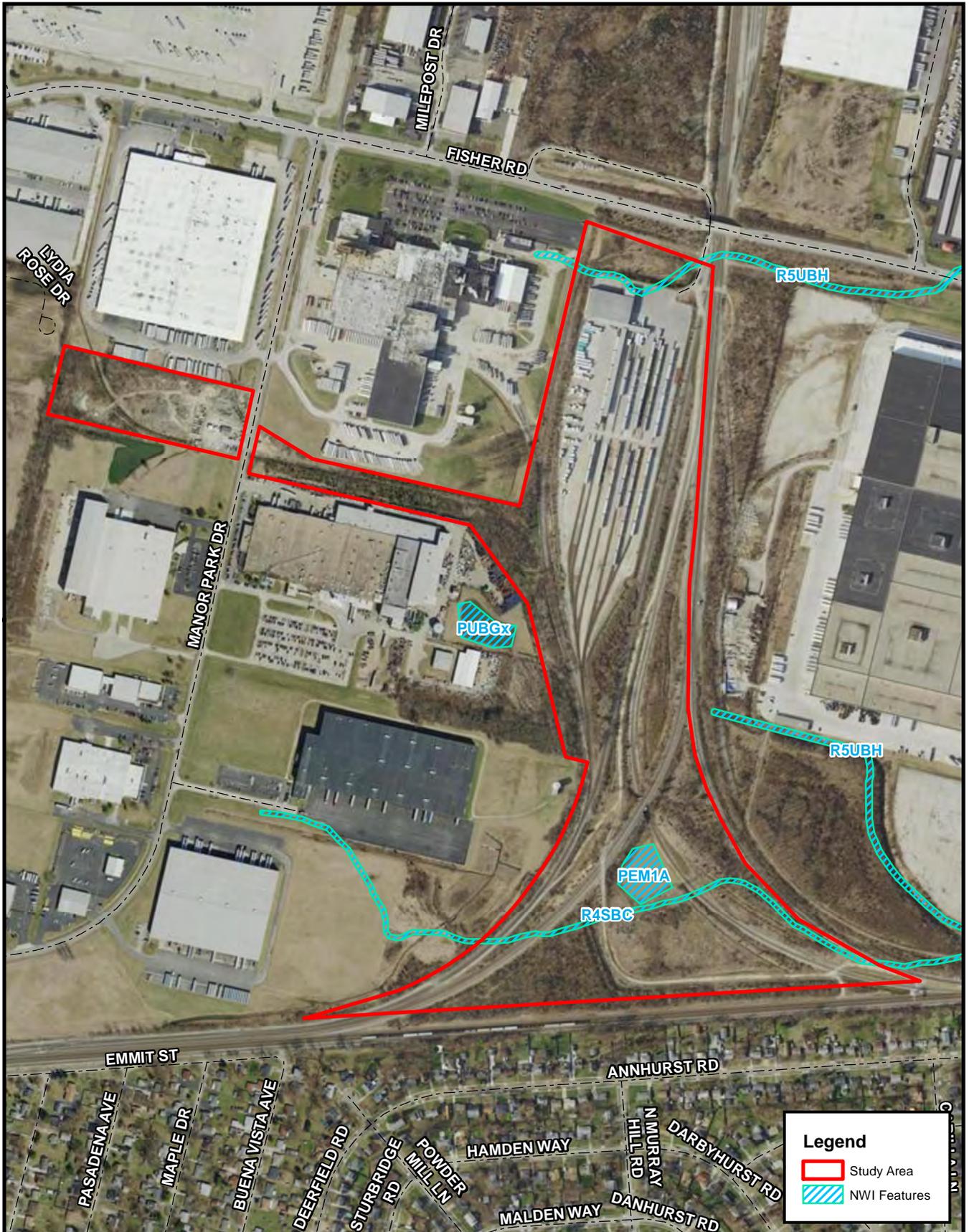


Legend
 Study Area



Source: Soils - USDA, 1980

Path: J:\20211145\GIS\Exhibit 4 - NWI Map.mxd



Legend

- Study Area
- NWI Features



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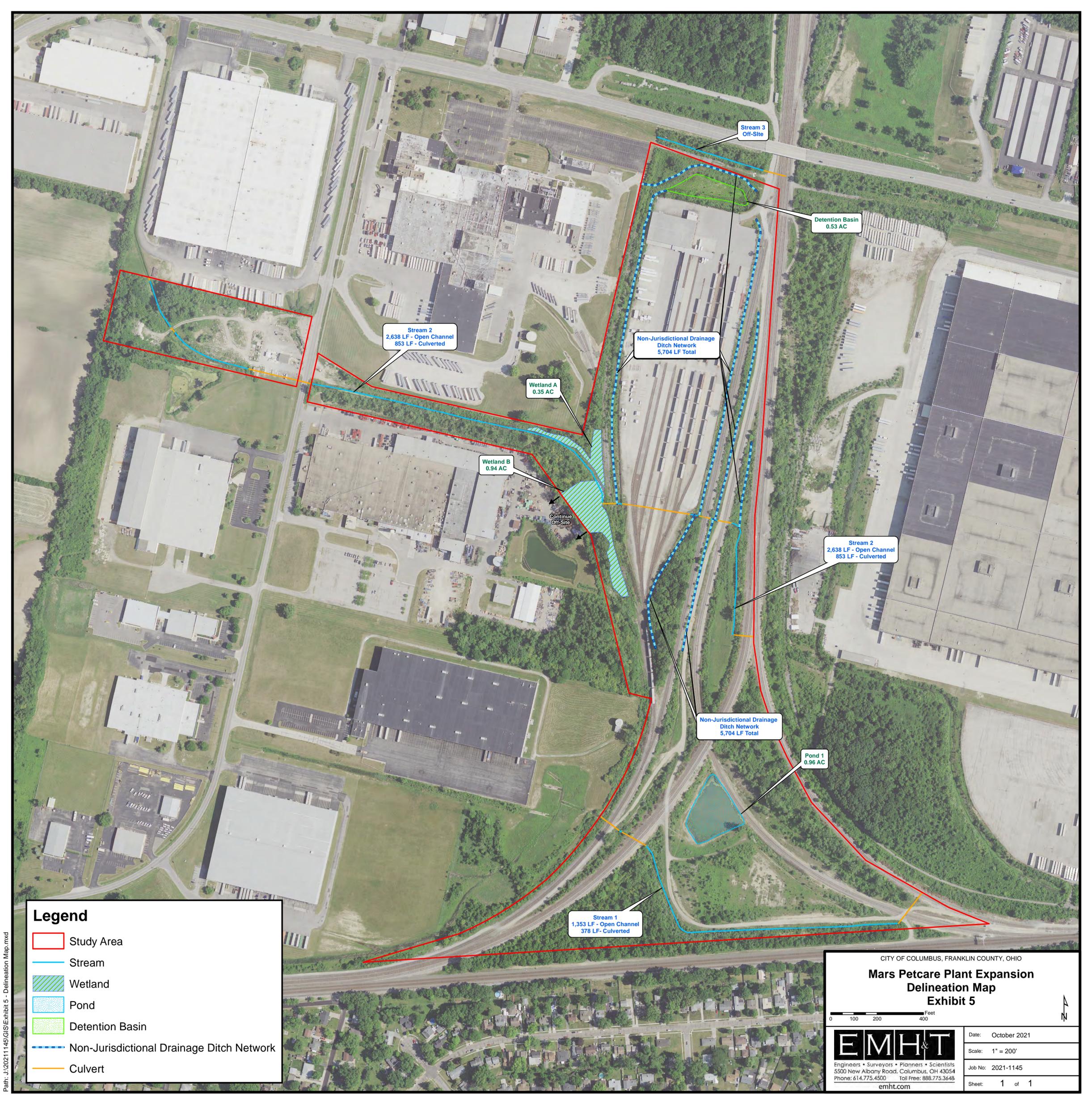
CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO

**Mars Petcare Plant Expansion
 National Wetland Inventory Map
 Exhibit 4**

SCALE: 1" = 600'



Source: NWI Features - FWS, 2019
 Aerial - City of Columbus, 2019



Legend

- Study Area
- Stream
- Wetland
- Pond
- Detention Basin
- Non-Jurisdictional Drainage Ditch Network
- Culvert

CITY OF COLUMBUS, FRANKLIN COUNTY, OHIO

Mars Petcare Plant Expansion Delineation Map Exhibit 5

0 100 200 400

Feet

↑

EMHT	Date: October 2021
Engineers • Surveyors • Planners • Scientists 5500 New Albany Road, Columbus, OH 43054 Phone: 614.775.4500 Toll Free: 888.775.3648	Scale: 1" = 200'
emht.com	Job No: 2021-1145
	Sheet: 1 of 1

Path: J:\20211145\GIS\Exhibit 5 - Delineation Map.mxd

PHOTOGRAPHS



Photograph 1
Wetland A facing north
(EMH&T, 10/27/2021)



Photograph 2
Wetland A facing east
(EMH&T, 10/27/2021)



Photograph 3
Wetland A facing south.
(EMH&T, 10/27/2021)



Photograph 4
Wetland A facing west.
(EMH&T, 10/27/2021)



Photograph 5
Wetland B facing north
(EMH&T, 10/27/2021)



Photograph 6
Wetland B facing east
(EMH&T, 10/27/2021)



Photograph 7
Wetland B facing south.
(EMH&T, 10/27/2021)



Photograph 8
Wetland B facing west.
(EMH&T, 10/27/2021)



Photograph 9
Stream 1 facing east (downstream)
(EMH&T, 10/26/2021)



Photograph 10
Stream 1 facing west (upstream)
(EMH&T, 10/26/2021)



Photograph 11
Stream 1 substrate
(EMH&T, 10/26/2021)



Photograph 12
Eastern portion of Stream 2 (east of the former railyard) facing north (upstream)
(EMH&T, 10/26/2021)



Photograph 13
Eastern portion of Stream 2 (east of the former railyard) facing east (downstream)
(EMH&T, 10/26/2021)



Photograph 14
Eastern portion of Stream 2 (east of the former railyard) substrate
(EMH&T, 10/26/2021)



Photograph 15
Western portion of Stream 2 (east of Manor Park Drive) facing west (upstream)
(EMH&T, 10/27/2021)



Photograph 16
Western portion of Stream 2 (east of Manor Park Drive) facing east (downstream)
(EMH&T, 10/27/2021)



Photograph 17
Western portion of Stream 2 (east of Manor Park Drive) substrate
(EMH&T, 10/27/2021)



Photograph 18
Beaver dam on Stream 2. Several beaver dams exist on the west part of the subject property.
(EMH&T, 10/27/2021)



Photograph 19

Western portion of Stream 2 (west of Manor Park Drive) facing northwest (upstream)
(EMH&T, 10/27/2021)



Photograph 20

Western portion of Stream 2 (west of Manor Park Drive) facing southeast (downstream)
(EMH&T, 10/27/2021)



Photograph 21
Western portion of Stream 2 (west of Manor Park Drive) substrate
(EMH&T, 10/27/2021)



Photograph 22
Off-site Stream 3 facing west (upstream)
(EMH&T, 10/26/2021)



Photograph 23
Off-site Stream 3 facing east (downstream)
(EMH&T, 10/26/2021)



Photograph 24
Off-site Stream 3 substrate
(EMH&T, 10/26/2021)



Photograph 25
Pond 1 facing north
(EMH&T, 10/26/2021)



Photograph 26
Pond 1 facing north
(EMH&T, 10/26/2021)



Photograph 27
Pond 1 facing east.
(EMH&T, 10/26/2021)



Photograph 28
Typical photograph of a non-jurisdictional detention basin facing northeast.
(EMH&T, 10/26/2021)



Photograph 29

Typical photograph of a non-jurisdictional, drainage ditch located east of the railyard, facing north. (EMH&T, 10/26/2021)



Photograph 30

Typical photograph of a non-jurisdictional, drainage ditch located west of the railyard, facing north. (EMH&T, 10/26/2021)

APPENDIX B:

USACE Approved Jurisdictional Determination



DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHTH STREET
HUNTINGTON, WEST VIRGINIA 25701-2070

REPLY TO
ATTENTION OF:

December 3, 2021

Regulatory Division
North Branch
LRH-2021-939-SCR

APPROVED AND PRELIMINARY JURISDICTIONAL DETERMINATION

Mr. Shane Watts
Mars Petcare US
2013 Ovation Parkway
Franklin, TN 37067

Dear Mr. Watts:

I refer to the *Investigation of Waters of the United States, Mars Petcare Expansion Property, Franklin County, Ohio* dated 11 November 2021. You have requested an Approved Jurisdictional Determination (JD) for the potentially non-jurisdictional features and a Preliminary JD for the potentially jurisdictional aquatic resources located within the 73.04-acre JD review area. The JD review area is located south of Fisher Road, west of Interstate 270, and east of Hilliard-Rome Road in the City of Columbus, Franklin County, Ohio (39.9679 latitude, -83.1328 longitude). Your request has been assigned the following file number: LRH-2021-939-SCR. Please reference this file number on all future correspondence related to this JD request.

The United States Army Corps of Engineers' (Corps) authority to regulate waters of the United States is based on the definitions and limits of jurisdiction contained in 33 CFR 328 and 33 CFR 329. Section 404 of the Clean Water Act (Section 404) requires a Department of the Army (DA) permit be obtained prior to the discharge of dredged or fill material into waters of the United States, including wetlands. Section 10 of the Rivers and Harbors Act of 1899 requires a DA permit be obtained for any work in, on, over or under navigable water.

Preliminary Jurisdictional Determination

Based upon a review of the submitted report, this office has determined that approximately 5,222 linear feet of two (2) perennial streams (Streams 1-2) and 1.29 acre of two (2) wetlands (Wetlands A and B) are located within the JD review area and may be waters of the United States in accordance with the Regulatory Guidance Letter for JDs issued by the Corps on October 31, 2016 (Regulatory Guidance Letter No. 16-01). As indicated in the guidance, this Preliminary JD is non-binding and cannot be appealed (33 CFR 331.2) and only provides a written indication that waters of the United States, including wetlands, may be present on-site.

You have declined to exercise the option to obtain an approved JD in this instance and at this time for the aquatic resources mentioned above. However, for the purposes of the determination of impacts, compensatory mitigation, and other resource protection measures for activities that

require authorization from this office, these aquatic resources will be evaluated as if they are waters of the United States.

Enclosed please find a copy of the Preliminary JD. If you agree with the findings of this Preliminary JD and understand your options regarding the same, please sign and date a copy of the Preliminary JD form and return it to this office within 30 days of receipt of this letter. You should submit the signed copy via email or to the following address:

United States Army Corps of Engineers
Huntington District
Attn: North Branch
502 Eighth Street
Huntington, West Virginia 25701

Approved Jurisdictional Determination

Our December 2, 2008 headquarters guidance entitled *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* was followed in the final verification of Section 404 jurisdiction. Based on a review of the of the submitted report Pond 1 (0.96 acre) appears to be man-made, excavated water feature that is in uplands, not created by impoundment of a jurisdictional stream, does not have a surface water connection to a traditional navigable water, and does not support wetland vegetation. Detention Basin 1 (0.53 acre) is a feature that has been created in dry land to convey, treat, and store stormwater for the development onsite. The onsite Drainage Network does not carry a relatively permanent flow of water, does not exhibit an ordinary high-water mark or defined bed and bank or wetland characteristics. Pond 1, Drainage Network, and Detention Basin 1 are not considered waters of the United States and is not subject to regulation under Section 404.

This jurisdictional verification is valid for a period of five (5) years from the date of this letter unless new information warrants revision of the delineation prior to the expiration date. This letter contains an AJD for the subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the Great Lakes and Ohio River Division Office at the following address:

Appeal Review Officer
United States Army Corps of Engineers
Great Lakes and Ohio River Division
550 Main Street, Room 10-714
Cincinnati, Ohio 45202-3222
Phone: (513) 684-7261
Fax: (513) 684-2460

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. **It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.**

This determination has been conducted to identify the limits of the Corps' Section 404 jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are United States Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

A copy of this letter will be provided to your agent, Mr. Eric Nagy with EMH&T. If you have any questions concerning the above information, please contact Mr. Cecil Cox of the North Branch at 304-399-6933, by mail at the above address or by email at cecil.m.cox@usace.army.mil.

Sincerely,

A handwritten signature in black ink that reads "Laurie A. Moore". The signature is written in a cursive style with a long horizontal flourish at the end.

Laurie A. Moore
Regulatory Project Manager
North Branch

Enclosure(s)

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: 2-DEC-2021

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:

Mr. Shane Watts
 Mars Petcare US
 2013 Ovation Parkway
 Franklin, TN 37067

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

LRH, Mars Petcare JD, LRH-2021-939-SCR

**D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
 (USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)**

State: OH County/parish/borough: Franklin County City: Columbus
 Center coordinates of site (lat/long in degree decimal format):
 Lat.: 39.9679° Long.: -83.1328°
 Universal Transverse Mercator:
 Name of nearest waterbody: Dry Run

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- Office (Desk) Determination. Date: 2 December 2021
- Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site Number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
Wetland A	39.9691	-83.1336	0.35 acres	Wetland	Section 404
Wetland B	39.9684	-83.1338	0.94 acres	Wetland	Section 404
Stream 1	39.9684	-83.1318	1,731 feet	Non-wetland waters	Section 404
Stream 2	39.9693	-83.1351	3,491 feet	Non-wetland waters	Section 404

- 1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
- 2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which

¹ Districts may establish timeframes for requester to return signed PJD forms. If the requester does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there "may be" waters of the U.S. and/or that there "may be" navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- Maps, plans, plots or plat submitted by or on behalf of the PJD requestor: *Investigation of Waters of the United States, Mars Petcare Expansion Property, Franklin County, Ohio* dated 11 November 2021 completed by EMH&T.
Map: _____.
- Data sheets prepared/submitted by or on behalf of the PJD requestor.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report. Rationale: _____.
- Data sheets prepared by the Corps: _____.
- Corps navigable waters' study: _____.
- U.S. Geological Survey Hydrologic Atlas: _____.
- USGS NHD data.
- USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: 7.5 Minute Galloway, Ohio Quad.
- Natural Resources Conservation Service Soil Survey. Citation: USGS soil survey Franklin County, Ohio.
- National wetlands inventory map(s). Cite name: NWI Mapped Wetlands within 1,000 feet (Google Layer).
- State/local wetland inventory map(s): _____.

¹ Districts may establish timeframes for requester to return signed PJD forms. If the requester does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

APPENDIX C:
SCPZ Tree Inventory

Tree Inventory and Replacement Calculations

Project Enzo: SWDM Variance

Tree Inventory and Replacement Summary

Area	Stream ID	Use Type	Tree Impacts		Required Replacement
			Total	Living, Non-Invasive	
1	Stream 2	Prohibited	3	0	0
2	Stream 2	Prohibited	1	1	1
3	Stream 2	Prohibited	19	11	26
4	Stream 2	Prohibited	3	3	3
5	Stream 2	Prohibited	0	0	0
6	Stream 3	Prohibited	0	0	0
7	Stream 1	Prohibited	0	0	0
8	Stream 1	Prohibited	0	0	0
9	Stream 1	Prohibited	58	57	67
10	Stream 3	Permitted	3	2	2
11	Stream 3	Prohibited	3	3	6
12	Stream 2	Permitted	0	0	0
	Total permitted		3	2	2
	Total prohibited		87	75	103
	Trees/acre				80

Tree Inventory and Replacement Calculations

ID	Area	Common Name	Scientific Name	DBH (in)	Trunks	Total Inches	Condition	Invasive?	Replacement
1	1	Callery Pear	<i>Pyrus calleryana</i>	12	1	12	Fair	Y	
2	1	Common Buckthorn	<i>Rhamnus cathartica</i>	7	1	7	Fair	Y	
3	1	Green Ash	<i>Fraxinus pennsylvanica</i>	6	1	6	Dead	N	
4	2	Eastern Cottonwood	<i>Populus deltoides</i>	11	1	11	Good	N	1
5	3	Black Cherry	<i>Prunus serotina</i>	9	1	9	Dead	N	
6	3	Callery Pear	<i>Pyrus calleryana</i>	6	1	6	Dead	Y	
7	3	Common Buckthorn	<i>Rhamnus cathartica</i>	6	1	6	Fair	Y	
8	3	Common Buckthorn	<i>Rhamnus cathartica</i>	7	1	7	Fair	Y	
9	3	Eastern Cottonwood	<i>Populus deltoides</i>	25	1	25	Dead	N	
10	3	Eastern Cottonwood	<i>Populus deltoides</i>	19	1	19	Dead	N	
11	3	Eastern Cottonwood	<i>Populus deltoides</i>	18	1	18	Good	N	2
12	3	Eastern Cottonwood	<i>Populus deltoides</i>	13,8	2	21	Good	N	3
13	3	Eastern Cottonwood	<i>Populus deltoides</i>	19	1	19	Good	N	3
14	3	Eastern Cottonwood	<i>Populus deltoides</i>	10	1	10	Good	N	1
15	3	Eastern Cottonwood	<i>Populus deltoides</i>	16	1	16	Good	N	2
16	3	Eastern Cottonwood	<i>Populus deltoides</i>	14,14	2	28	Good	N	4
17	3	Eastern Cottonwood	<i>Populus deltoides</i>	13	1	13	Poor	N	2
18	3	Eastern Cottonwood	<i>Populus deltoides</i>	19	1	19	Good	N	3
19	3	Eastern Cottonwood	<i>Populus deltoides</i>	18,16	2	34	Poor	N	4
20	3	Green Ash	<i>Fraxinus pennsylvanica</i>	10	1	10	Dead	N	
21	3	Green Ash	<i>Fraxinus pennsylvanica</i>	8	1	8	Good	N	1
22	3	Green Ash	<i>Fraxinus pennsylvanica</i>	12	1	12	Dead	N	
23	3	Red Mulberry	<i>Morus rubra</i>	11	1	11	Good	N	1
24	4	American Elm	<i>Ulmus americana</i>	8	1	8	Good	N	1
25	4	Eastern Redcedar	<i>Juniperus virginiana</i>	6,6	2	12	Poor	N	1
26	4	Slippery Elm	<i>Ulmus rubra</i>	9	1	9	Good	N	1
27	9	Black Walnut	<i>Juglans nigra</i>	7	1	7	Good	N	1
28	9	Black Walnut	<i>Juglans nigra</i>	6	1	6	Fair	N	1
29	9	Black Walnut	<i>Juglans nigra</i>	8	1	8	Fair	N	1
30	9	Black Walnut	<i>Juglans nigra</i>	9	1	9	Fair	N	1
31	9	Black Walnut	<i>Juglans nigra</i>	6	1	6	Poor	N	1
32	9	Black Walnut	<i>Juglans nigra</i>	7	1	7	Poor	N	1
33	9	Black Walnut	<i>Juglans nigra</i>	6	1	6	Poor	N	1

Tree Inventory and Replacement Calculations

ID	Area	Common Name	Scientific Name	DBH (in)	Trunks	Total Inches	Condition	Invasive?	Replacement
34	9	Black Walnut	<i>Juglans nigra</i>	7	1	7	Fair	N	1
35	9	Black Walnut	<i>Juglans nigra</i>	6	1	6	Poor	N	1
36	9	Black Walnut	<i>Juglans nigra</i>	8	1	8	Poor	N	1
37	9	Black Walnut	<i>Juglans nigra</i>	6	1	6	Fair	N	1
38	9	Black Walnut	<i>Juglans nigra</i>	9	1	9	Fair	N	1
39	9	Black Walnut	<i>Juglans nigra</i>	7	1	7	Poor	N	1
40	9	Black Walnut	<i>Juglans nigra</i>	6	1	6	Poor	N	1
41	9	Black Walnut	<i>Juglans nigra</i>	6	1	6	Poor	N	1
42	9	Black Walnut	<i>Juglans nigra</i>	7	1	7	Poor	N	1
43	9	Black Walnut	<i>Juglans nigra</i>	8	1	8	Poor	N	1
44	9	Black Walnut	<i>Juglans nigra</i>	8	1	8	Fair	N	1
45	9	Black Walnut	<i>Juglans nigra</i>	8	1	8	Fair	N	1
46	9	Black Walnut	<i>Juglans nigra</i>	7	1	7	Fair	N	1
47	9	Black Walnut	<i>Juglans nigra</i>	7	1	7	Fair	N	1
48	9	Black Walnut	<i>Juglans nigra</i>	9	1	9	Good	N	1
49	9	Black Walnut	<i>Juglans nigra</i>	8	1	8	Good	N	1
50	9	Black Walnut	<i>Juglans nigra</i>	6,6	2	12	Good	N	1
51	9	Black Walnut	<i>Juglans nigra</i>	6	1	6	Dead	N	
52	9	Black Walnut	<i>Juglans nigra</i>	7	1	7	Good	N	1
53	9	Black Walnut	<i>Juglans nigra</i>	6	1	6	Good	N	1
54	9	Black Walnut	<i>Juglans nigra</i>	9	1	9	Good	N	1
55	9	Black Walnut	<i>Juglans nigra</i>	12,7	2	21	Fair	N	3
56	9	Black Walnut	<i>Juglans nigra</i>	9	1	9	Good	N	1
57	9	Black Walnut	<i>Juglans nigra</i>	7,7	2	14	Good	N	2
58	9	Black Walnut	<i>Juglans nigra</i>	6	1	6	Good	N	1
59	9	Black Walnut	<i>Juglans nigra</i>	10	1	10	Good	N	1
60	9	Black Willow	<i>Salix nigra</i>	7	1	7	Good	N	1
61	9	Eastern Cottonwood	<i>Populus deltoides</i>	8	1	8	Fair	N	1
62	9	Green Ash	<i>Fraxinus pennsylvanica</i>	8,7,6	3	21	Poor	N	3
63	9	Green Ash	<i>Fraxinus pennsylvanica</i>	6	1	6	Good	N	1
64	9	Green Ash	<i>Fraxinus pennsylvanica</i>	8	1	8	Good	N	1
65	9	Green Ash	<i>Fraxinus pennsylvanica</i>	8	1	8	Fair	N	1
66	9	Green Ash	<i>Fraxinus pennsylvanica</i>	7	1	7	Good	N	1

Tree Inventory and Replacement Calculations

ID	Area	Common Name	Scientific Name	DBH (in)	Trunks	Total Inches	Condition	Invasive?	Replacement
67	9	Green Ash	<i>Fraxinus pennsylvanica</i>	6	1	6	Good	N	1
68	9	Green Ash	<i>Fraxinus pennsylvanica</i>	7	1	7	Good	N	1
69	9	Green Ash	<i>Fraxinus pennsylvanica</i>	6,6	2	12	Fair	N	1
70	9	Green Ash	<i>Fraxinus pennsylvanica</i>	6	1	6	Good	N	1
71	9	Green Ash	<i>Fraxinus pennsylvanica</i>	6	1	6	Good	N	1
72	9	Green Ash	<i>Fraxinus pennsylvanica</i>	6	1	6	Good	N	1
73	9	Green Ash	<i>Fraxinus pennsylvanica</i>	8	1	8	Good	N	1
74	9	Green Ash	<i>Fraxinus pennsylvanica</i>	6	1	6	Good	N	1
75	9	Green Ash	<i>Fraxinus pennsylvanica</i>	8	1	8	Fair	N	1
76	9	Green Ash	<i>Fraxinus pennsylvanica</i>	7	1	7	Good	N	1
77	9	Green Ash	<i>Fraxinus pennsylvanica</i>	9	1	9	Fair	N	1
78	9	Green Ash	<i>Fraxinus pennsylvanica</i>	6	1	6	Good	N	1
79	9	Green Ash	<i>Fraxinus pennsylvanica</i>	6,6,6	3	18	Good	N	2
80	9	Green Ash	<i>Fraxinus pennsylvanica</i>	7	1	7	Good	N	1
81	9	Silver Maple	<i>Acer saccharinum</i>	11	1	11	Good	N	1
82	9	Silver Maple	<i>Acer saccharinum</i>	15,12,10	3	37	Good	N	4
83	9	Silver Maple	<i>Acer saccharinum</i>	8,8	2	16	Good	N	2
84	9	Silver Maple	<i>Acer saccharinum</i>	12	1	12	Good	N	1
85	11	American Crabapple	<i>Malus coronaria</i>	8,6,6	3	20	Poor	N	3
86	11	American Crabapple	<i>Malus coronaria</i>	8	1	8	Poor	N	1
87	11	American Crabapple	<i>Malus coronaria</i>	15	1	15	Poor	N	2
88	10	Green Ash	<i>Fraxinus pennsylvanica</i>	7,7	2	14	Good	N	1
89	10	Red Mulberry	<i>Morus rubra</i>	9	1	9	Fair	N	1
90	10	Callery Pear	<i>Pyrus calleryana</i>	11	1	11	Good	Y	

 Dead or invasive tree not subject to replacement

APPENDIX D:
QHEI and HHEI Dataforms

Stream & Location: Stream 1 Project Enzo RM: Date: 10 / 27 / 21

Scorers Full Name & Affiliation: E. Nagy, EMH&T

River Code: STORET #: Lat./ Long.: 39.963519 / 83.1306 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average). BEST TYPES, POOL RIFFLE, OTHER TYPES, POOL RIFFLE, ORIGIN, QUALITY. Includes checkboxes for BLDR/SLABS, BOULDER, COBBLE, GRAVEL, SAND, BEDROCK, HARDPAN, DETRITUS, MUCK, SILT, ARTIFICIAL, LIMESTONE, TILLS, WETLANDS, SANDSTONE, RIP/RAP, LACUSTURINE, SHALE, COAL FINES, HEAVY, MODERATE, NORMAL, FREE, EXTENSIVE, NONE.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. AMOUNT. Check ONE (Or 2 & average). Includes checkboxes for UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS > 70cm, ROOTWADS, BOULDERS, OXBOWS, BACKWATERS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS, EXTENSIVE, MODERATE, SPARSE, NEARLY ABSENT.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Includes checkboxes for HIGH, MODERATE, LOW, NONE, EXCELLENT, GOOD, FAIR, POOR, NONE, RECOVERED, RECOVERING, RECENT OR NO RECOVERY, HIGH, MODERATE, LOW.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). River right looking downstream. EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY. Includes checkboxes for NONE/LITTLE, MODERATE, HEAVY/SEVERE, WIDE > 50m, MODERATE 10-50m, NARROW 5-10m, VERY NARROW < 5m, NONE, FOREST, SWAMP, SHRUB OR OLD FIELD, RESIDENTIAL, PARK, NEW FIELD, FENCED PASTURE, OPEN PASTURE, ROWCROP, CONSERVATION TILLAGE, URBAN OR INDUSTRIAL, MINING / CONSTRUCTION.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY. Check ONE (ONLY!), Check ONE (Or 2 & average), Check ALL that apply. Includes checkboxes for > 1m, 0.7-<1m, 0.4-<0.7m, 0.2-<0.4m, < 0.2m, POOL WIDTH > RIFFLE WIDTH, POOL WIDTH = RIFFLE WIDTH, POOL WIDTH < RIFFLE WIDTH, TORRENTIAL, VERY FAST, FAST, MODERATE, SLOW, INTERSTITIAL, INTERMITTENT, EDDIES.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS. Includes checkboxes for BEST AREAS > 10cm, BEST AREAS 5-10cm, BEST AREAS < 5cm, MAXIMUM > 50cm, MAXIMUM < 50cm, STABLE, MOD. STABLE, UNSTABLE, NONE, LOW, MODERATE, EXTENSIVE.

6] GRADIENT (16.7 ft/mi) DRAINAGE AREA (1.16 mi^2). VERY LOW - LOW, MODERATE, HIGH - VERY HIGH. %POOL: 15, %GLIDE: 50, %RUN: 30, %RIFFLE: 5. Gradient Maximum 10.

AJ SAMPLED REACH
Check ALL that apply

- METHOD**
- BOAT
 - WADE
 - L. LINE
 - OTHER
- STAGE**
- 1st - sample pass - 2nd
 - HIGH
 - UP
 - NORMAL
 - LOW
 - DRY
- DISTANCE**
- 0.5 Km
 - 0.2 Km
 - 0.15 Km
 - 0.12 Km
 - OTHER

- CLARITY**
- 1st - sample pass - 2nd
 - < 20 cm
 - 20-40 cm
 - 40-70 cm
 - > 70 cm/ CTB
 - SECCHI DEPTH
- CANOPY**
- 1st _____ cm
 - 2nd _____ cm
 - > 85% - OPEN
 - 55% - 85%
 - 30% - 55%
 - 10% - 30%
 - < 10% - CLOSED

- CJ RECREATION**
- AREA DEPTH
- POOL: > 100R² > 3R

Comment RE: Reach consistency/ Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc

BJ AESTHETICS

- NUISANCE ALGAE
- INVASIVE MACROPHYTES
- EXCESS TURBIDITY
- DISCOLORATION
- FOAM / SCUM
- OIL SHEEN
- TRASH / LITTER
- NUISANCE ODOR
- SLUDGE DEPOSITS
- CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

- PUBLIC / PRIVATE / BOTH / NA
- ACTIVE / HISTORIC / BOTH / NA
- YOUNG-SUCCESSION-OLD
- SPRAY / SNAG / REMOVED
- MODIFIED / DIPPED OUT / NA
- LEVEED / ONE SIDED
- RELOCATED / CUTOFFS
- MOVING-BEDLOAD-STABLE
- ARMORED / SLUMPS
- ISLANDS / SCoured
- IMPOUNDED / DESICCATED
- FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

Apparently modified to flow within a straight, fortified channel from culvert to culvert.

EJ ISSUES

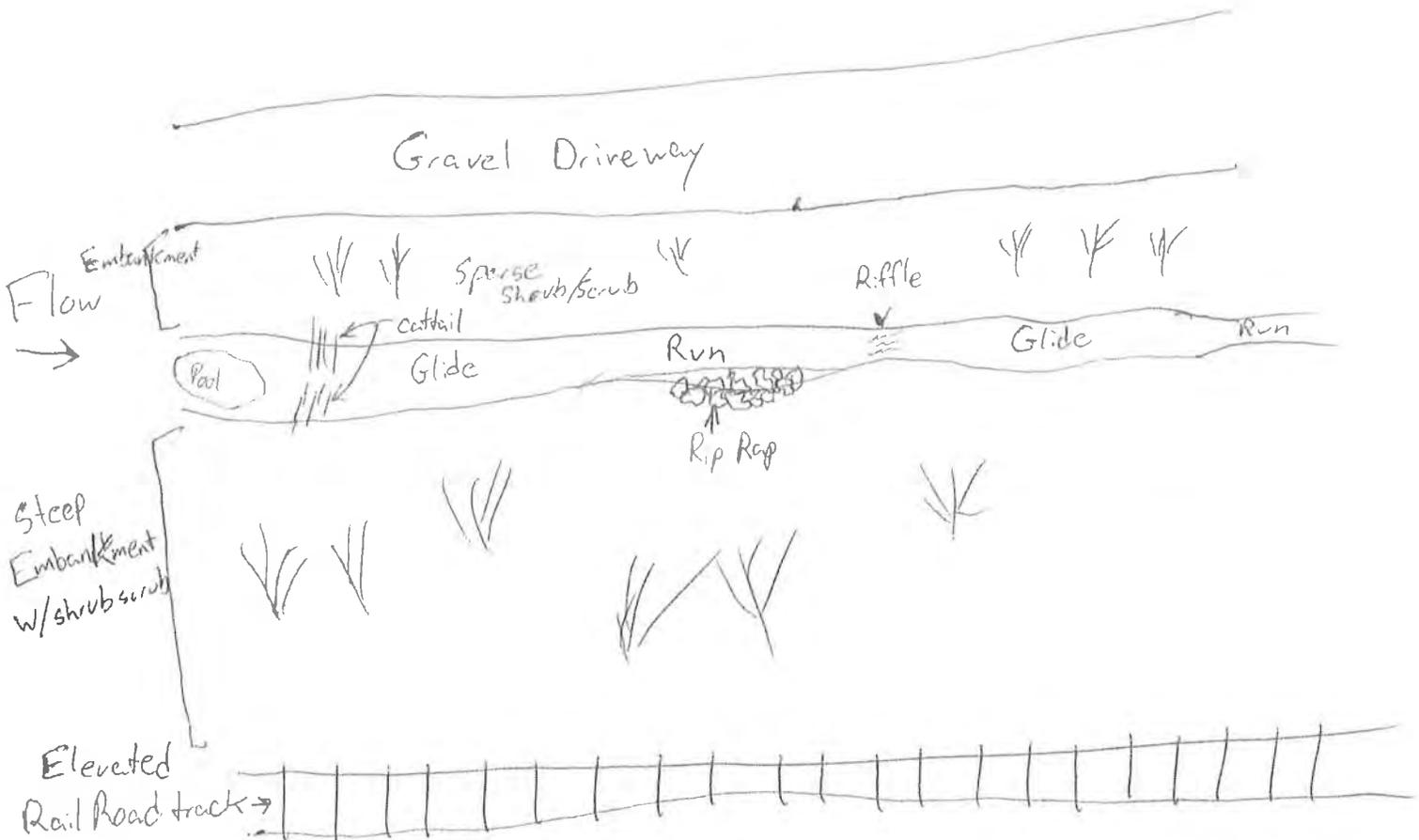
- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- \bar{x} width
- \bar{x} depth
- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- W/D ratio
- bankfull max. depth
- floodprone \bar{x} width
- entrench. ratio
- Legacy Tree:

Stream Drawing:

Shrub scrub / Industrial disturbed soil





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

58

SITE NAME/LOCATION Project Enzo - Stream 2 (west)
 SITE NUMBER _____ RIVER BASIN _____ RIVER CODE _____ DRAINAGE AREA (mi²) _____
 LENGTH OF STREAM REACH (ft) _____ LAT 39.969528 LONG -83.136117 RIVER MILE _____
 DATE 10/27/21 SCORER E. Nagy COMMENTS Historic channelization from railyard and plant/ beaver evident along reach.

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY

<p>1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B</p> <table border="0"> <tr> <td>TYPE</td> <td>PERCENT</td> <td>TYPE</td> <td>PERCENT</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]</td> <td>0%</td> <td><input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]</td> <td>90%</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]</td> <td>0%</td> <td><input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td> <td>10%</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]</td> <td>0%</td> <td><input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]</td> <td>0%</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td> <td>0%</td> <td><input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]</td> <td>0%</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td> <td>0%</td> <td><input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]</td> <td>0%</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]</td> <td>0%</td> <td><input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]</td> <td>0%</td> </tr> </table> <p>Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0% (A) 6 (B) 2</p> <p>SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2</p>		TYPE	PERCENT	TYPE	PERCENT	<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	90%	<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%	<p>HHEI Metric Points</p> <p>Substrate Max = 40</p> <p>8</p> <p>A + B</p>
TYPE	PERCENT	TYPE	PERCENT																											
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<p>2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/> > 30 centimeters [20 pts]</td> <td><input type="checkbox"/> 5 cm - 10 cm [15 pts]</td> </tr> <tr> <td><input type="checkbox"/> > 22.5 - 30 cm [30 pts]</td> <td><input type="checkbox"/> < 5 cm [5pts]</td> </tr> <tr> <td><input type="checkbox"/> > 10 - 22.5 cm [25 pts]</td> <td><input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]</td> </tr> </table> <p>COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 91.4</p>		<input checked="" type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> 5 cm - 10 cm [15 pts]	<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5pts]	<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]	<p>Pool Depth Max = 30</p> <p>20</p>																						
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This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture	Mining or Construction

COMMENTS _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS Beaver have impounded flow, but likely perennial

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

Flat (<0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (>10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? Yes No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

- WWH Name: _____ Distance from Evaluated Stream _____
- CWH Name: _____ Distance from Evaluated Stream _____
- EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Galloway, 1994 NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____

County: Franklin Township/City: Columbus

MISCELLANEOUS

Base Flow Conditions? (Y/N): _____ Date of last precipitation: _____ Quantity: _____

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): _____ Canopy (% open): _____

Were samples collected for water chemistry? (Y/N): _____ Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) _____ If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) _____ Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) _____ Species observed (if known): _____

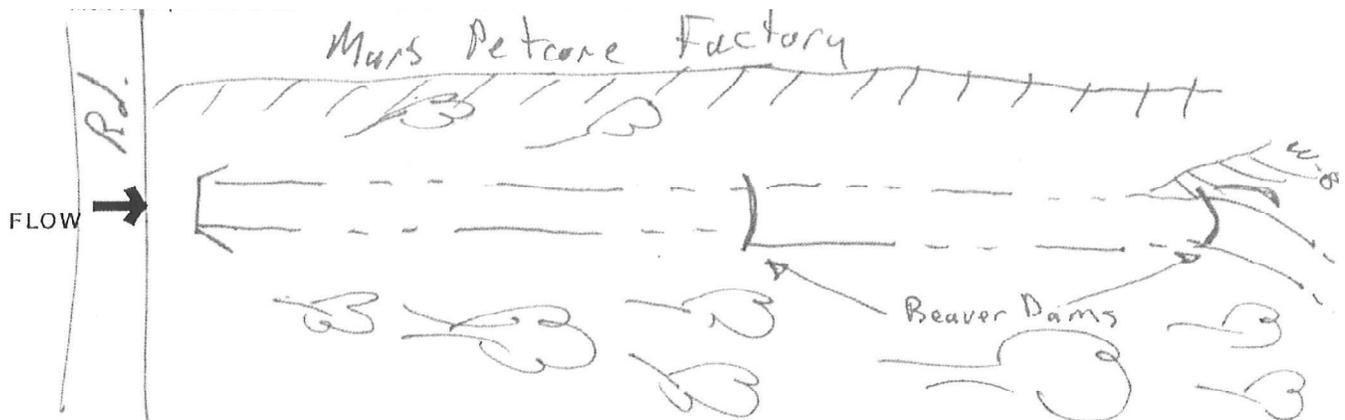
Salamanders Observed? (Y/N) _____ Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) _____ Species observed (if known): _____

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

58

SITE NAME/LOCATION Project Enzo - Stream 2 (east)
 SITE NUMBER _____ RIVER BASIN _____ RIVER CODE _____ DRAINAGE AREA (mi²) _____
 LENGTH OF STREAM REACH (ft) _____ LAT 39.967869 LONG -83.131497 RIVER MILE _____
 DATE 10/27/21 SCORER E. Nagy COMMENTS Historic channelization from railyard.

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B		HHEI Metric Points Substrate Max = 40 8 A + B																											
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Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0% (A) 6 (B) 2 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 2																													
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COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 12.7																													
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COMMENTS <u>Affected by beaver dams</u> AVERAGE BANKFULL WIDTH (meters) 3.0																													

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture	Mining or Construction

COMMENTS _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS Beaver have impounded flow, but likely perennial

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

Flat (<0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (>10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? Yes No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

WWH Name: _____ Distance from Evaluated Stream _____
 CWH Name: _____ Distance from Evaluated Stream _____
 EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Galloway, 1994 NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Franklin Township/City: Columbus

MISCELLANEOUS

Base Flow Conditions? (Y/N): _____ Date of last precipitation: _____ Quantity: _____

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): _____ Canopy (% open): _____

Were samples collected for water chemistry? (Y/N): _____ Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) _____ If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) _____ Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) _____ Species observed (if known): _____

Salamanders Observed? (Y/N) _____ Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) _____ Species observed (if known): _____

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

29

SITE NAME/LOCATION Mars Petcare Expansion - Stream 3
 SITE NUMBER _____ RIVER BASIN 050600011205 RIVER CODE _____ DRAINAGE AREA (mi²) 0.15
 LENGTH OF STREAM REACH (ft) 200 LAT 39.972442° LONG -83.131366° RIVER MILE _____
 DATE 11-14-2022 SCORER DD COMMENTS _____

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B		HHEI Metric Points Substrate Max = 40 9 A + B																											
<table border="0"> <tr><th>TYPE</th><th>PERCENT</th><th>TYPE</th><th>PERCENT</th></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]</td><td>_____</td><td><input type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]</td><td>70</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]</td><td>_____</td><td><input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td><td>20</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]</td><td>_____</td><td><input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]</td><td>_____</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td><td>_____</td><td><input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]</td><td>_____</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td><td>_____</td><td><input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]</td><td>_____</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]</td><td>_____</td><td><input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]</td><td>10</td></tr> </table>	TYPE		PERCENT	TYPE	PERCENT	<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	70	<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	20	<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____	<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	10
TYPE	PERCENT	TYPE	PERCENT																										
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	70																										
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Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock ° _____ (A) 6 (B) 3 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 6 TOTAL NUMBER OF SUBSTRATE TYPES: 3																													
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):		Pool Depth Max = 30 15																											
<table border="0"> <tr><td><input type="checkbox"/> > 30 centimeters [20 pts]</td><td><input checked="" type="checkbox"/> 5 cm - 10 cm [15 pts]</td></tr> <tr><td><input type="checkbox"/> > 22.5 - 30 cm [30 pts]</td><td><input type="checkbox"/> < 5 cm [5pts]</td></tr> <tr><td><input type="checkbox"/> > 10 - 22.5 cm [25 pts]</td><td><input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]</td></tr> </table>			<input type="checkbox"/> > 30 centimeters [20 pts]	<input checked="" type="checkbox"/> 5 cm - 10 cm [15 pts]	<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5pts]	<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]																					
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<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]																												
COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 9																													
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):		Bankfull Width Max=30 5																											
<table border="0"> <tr><td><input type="checkbox"/> > 4.0 meters (> 13') [30 pts]</td><td><input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]</td></tr> <tr><td><input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]</td><td><input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]</td></tr> <tr><td><input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]</td><td></td></tr> </table>			<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input checked="" type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]	<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																						
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COMMENTS _____ AVERAGE BANKFULL WIDTH (meters) 0.65																													

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field	Urban or Industrial
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture	Mining or Construction

COMMENTS _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

Flat (<0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (>10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? Yes No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

WWH Name: Scioto River Distance from Evaluated Stream 3.93 miles
 CWH Name: _____ Distance from Evaluated Stream _____
 EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION.

USGS Quadrangle Name: Galloway, OH NRCS Soil Map Page: _____ NRCS Soil Map Stream Order: _____
County: Franklin Township/City: Prairie Township, OH

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: 11/13/2022 Quantity: 0.17 inches

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 15

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (umhos/cm) _____

Is the sampling reach representative of the stream (Y/N) Y If not, explain: _____

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

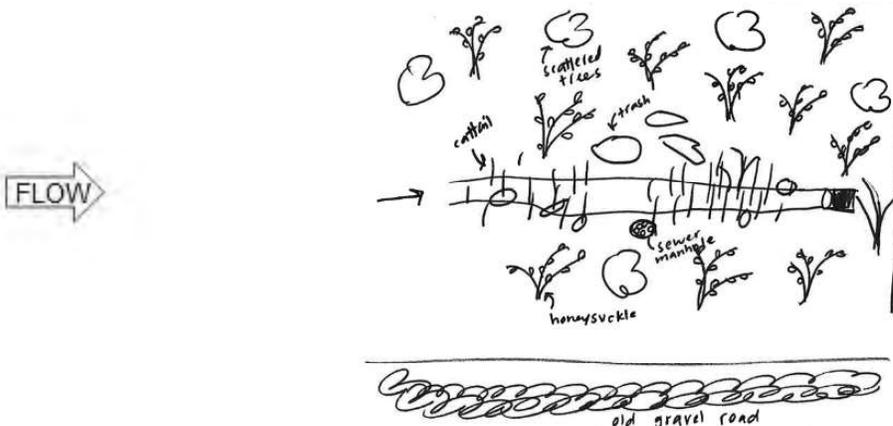
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed)

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

62

SITE NAME/LOCATION Project Enzo - Stream 2 (west)
 SITE NUMBER _____ RIVER BASIN _____ RIVER CODE _____ DRAINAGE AREA (mi²) _____
 LENGTH OF STREAM REACH (ft) _____ LAT 39.969528 LONG -83.136117 RIVER MILE _____
 DATE _____ SCORER _____ COMMENTS Project POST-ENHANCEMENT HHEI

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B		HHEI Metric Points Substrate Max = 40 12 A + B																											
<table border="0"> <tr><th>TYPE</th><th>PERCENT</th><th>TYPE</th><th>PERCENT</th></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]</td><td>0%</td><td><input type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]</td><td>70</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]</td><td>0%</td><td><input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td><td>10%</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]</td><td>0%</td><td><input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td><td>0%</td><td><input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]</td><td>0%</td></tr> <tr><td><input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td><td>0%</td><td><input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]</td><td>0%</td></tr> <tr><td><input checked="" type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]</td><td>20</td><td><input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]</td><td>0%</td></tr> </table>	TYPE		PERCENT	TYPE	PERCENT	<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	70	<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	10%	<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	20	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%
TYPE	PERCENT	TYPE	PERCENT																										
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<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%																										
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Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock 0% SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9 TOTAL NUMBER OF SUBSTRATE TYPES: 3																													
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):		Pool Depth Max = 30 25																											
<table border="0"> <tr><td><input type="checkbox"/> > 30 centimeters [20 pts]</td><td><input type="checkbox"/> 5 cm - 10 cm [15 pts]</td></tr> <tr><td><input type="checkbox"/> > 22.5 - 30 cm [30 pts]</td><td><input type="checkbox"/> < 5 cm [5 pts]</td></tr> <tr><td><input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts]</td><td><input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]</td></tr> </table>			<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> 5 cm - 10 cm [15 pts]	<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]	<input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]																					
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<input checked="" type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]																												
COMMENTS _____ MAXIMUM POOL DEPTH (centimeters): 12-15																													
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):		Bankfull Width Max=30 25																											
<table border="0"> <tr><td><input type="checkbox"/> > 4.0 meters (> 13') [30 pts]</td><td><input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]</td></tr> <tr><td><input checked="" type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]</td><td><input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]</td></tr> <tr><td><input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]</td><td></td></tr> </table>			<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input checked="" type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]	<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																						
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<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																													
COMMENTS <u>Affected by beaver dams</u> AVERAGE BANKFULL WIDTH (meters) 3.0																													

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY * NOTE: River Left (L) and Right (R) as looking downstream*

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field	Open Pasture, Row Crop
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture	Mining or Construction

COMMENTS _____

FLOW REGIME (At Time of Evaluation) (Check ONLY one box):

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (interstitial)	<input type="checkbox"/> Dry channel, no water (ephemeral)

COMMENTS _____

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):

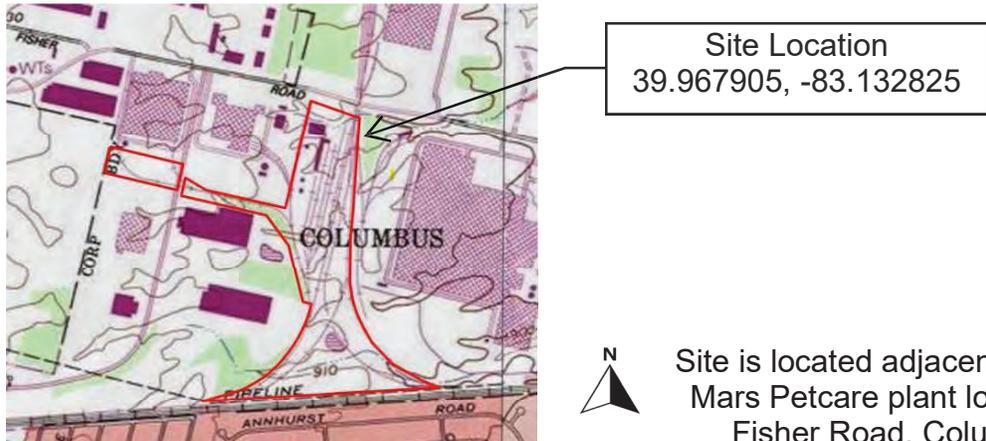
<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

Flat (<0.5%/100 ft) Flat to Moderate Moderate (2.0/100 ft) Moderate to Severe Severe (>10.0/100 ft)

APPENDIX E:
ORAM Dataform

Background Information

Name: Eric Nagy J. Brent Glover	
Date: 10/27/22 11/15/2022	
Affiliation: EMH&T Ohio EPA	
Address: 5500 New Albany Road, Columbus, Ohio 43054	
Phone Number: 614-775-4518 614-644-2052	
e-mail address: enagy@emht.com james.glover@epa.ohio.gov	
Name of Wetland: Wetland B AB	
Vegetation Communit(ies): Forest, shrub, emergent, aquatic bed	
HGM Class(es): Riverine	
	
<p>Site Location 39.967905, -83.132825</p> <p>Site is located adjacent to the existing Mars Petcare plant located at 5115 Fisher Road, Columbus, Ohio</p>	
Lat/Long or UTM Coordinate	39.967905, -83.132825
USGS Quad Name	Galloway
County	Franklin
Township	Columbus
Section and Subsection	FIND
Hydrologic Unit Code	05060001
Site Visit	11/14/2022 10/27/22
National Wetland Inventory Map	Not a mapped wetland
Ohio Wetland Inventory Map	No?
Soil Survey	Lewisburg- Crosby Complex, 2-6% slopes
Delineation report/map	See Mars Petcare Expansion Project (73.04-acres) Investigation of Waters of the U.S. (EMH&T, 11/11/21)

Name of Wetland: Wetland B AB	
Wetland Size (acres, hectares): 1.29 0.94 ac onsite (continues offsite)	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
<p>The sketch is an aerial photograph of a property with several wetland areas and water features highlighted. A red line outlines the property boundary. A blue line represents Stream 2, with a callout box indicating it has 2,638 LF of open channel and 853 LF of culvert. A green hatched area represents Wetland A (0.35 AC). A larger green hatched area represents Wetland B (0.94 AC), with an arrow pointing to it from a callout box and another arrow pointing to the text 'Continue Off-Site'. A blue dashed line represents a Non-Jurisdictional Drainage Ditch Network with a total of 5,704 LF. A north arrow is located in the bottom right corner of the sketch area.</p>	
Comments, Narrative Discussion, Justification of Category Changes: Wetland B is a forested wetland abutting a perennial stream (Stream 2) in the west-central portion of the subject property. Approximately 0.94 acre of this wetland exists within the subject property boundaries; however, the feature was observed to continue offsite. Wetland B appears to have a direct hydrological connection to a jurisdictional tributary (Stream 2). The wetland has either formed or has been expanded by the presence of beavers, which have dammed up Stream 2 at numerous locations and have partially blocked the Stream 2 culvert under the railyard. At the wetland data point, the plant community was dominated by Eastern cottonwood (<i>Populus deltoides</i>), green ash (<i>Fraxinus pennsylvanica</i>), black willow (<i>Salix nigra</i>), red osier dogwood (<i>Cornus sericea</i>), sandbar willow (<i>Salix interior</i>), narrowleaf cattail (<i>Typha angustifolia</i>), and rice cutgrass (<i>Leersia oryzoides</i>). Indicators of wetland hydrology included surface water, high water table, saturation, inundation visible on aerial imagery, water-stained leaves, drainage patterns, geomorphic position, and FAC-neutral test. The indicators of hydric soils were depleted matrix, possible redox depressions, and possible Coast Prairie redox.	
Final score : 39	Category: Mod. 2

Name of Wetland: Wetland AB	
Wetland Size (acres, hectares):	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.	
<p>Comments, Narrative Discussion, Justification of Category Changes:</p> <p>Wetland A is a 0.35 acre emergent, riverine wetland abutting a perennial stream (Stream 2) in the west-central portion of the subject property. Wetland A appears to have a direct hydrological connection to a jurisdictional tributary (Stream 2). The wetland has either formed or has been expanded by the presence of beavers, which have dammed up Stream 2 at numerous locations and have partially blocked the Stream 2 culvert under the railyard. At the wetland data point, the plant community was dominated by narrowleaf cattail (<i>Typha angustifolia</i>), rice cutgrass (<i>Leersia oryzoides</i>), softstem bulrush (<i>Schoenoplectus tabernaemontani</i>), sedge (<i>Carex</i> spp.), and common boneset (<i>Eupatorium perfoliatum</i>). Indicators of wetland hydrology included surface water, high water table, saturation, inundation visible on aerial imagery, water-stained leaves, geomorphic position, and FAC-neutral test. The indicators of hydric soils were depleted matrix, possible redox depressions, and possible Coast Prairie redox.</p> <p>Wetlands A and B are connected hydrologically by Stream 2 via a culvert under the rail access road that runs parallel to the stream. Both separate descriptions are included here to form one complete entry.</p>	
Final score :	Category:

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	X	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	X	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	X	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	X	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	X	X
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	X	

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	<input checked="" type="radio"/> NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	<input checked="" type="radio"/> NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	<input checked="" type="radio"/> NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	<input checked="" type="radio"/> NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	<input checked="" type="radio"/> NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	<input checked="" type="radio"/> NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	<input checked="" type="radio"/> NO Go to Question 8a
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	<input checked="" type="radio"/> NO Go to Question 8b

No Changes

8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

No Changes

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinarum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

No Changes

Site: Project Enzo Mars Petcare Wetland B	Rater(s): Eric Nagy, EMH&T	Date: 10/27/21
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2	2
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

Select one size class and assign score.

- >50 acres (>20.2ha) (6 pts)
- 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- 10 to <25 acres (4 to <10.1ha) (4 pts)
- 3 to <10 acres (1.2 to <4ha) (3 pts)
- 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- <0.1 acres (0.04ha) (0 pts)

0.94 ac onsite (continues offsite)

2	4
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

17	21
max 30 pts.	subtotal

Metric 3. Hydrology.

3a. Sources of Water. Score all that apply.

- High pH groundwater (5)
- Other groundwater (3)
- Precipitation (1)
- Seasonal/Intermittent surface water (3)
- Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- 100 year floodplain (1)
- Between stream/lake and other human use (1)
- Part of wetland/upland (e.g. forest), complex (1)
- Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- >0.7 (27.6in) (3)
- 0.4 to 0.7m (15.7 to 27.6in) (2)
- <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- Semi- to permanently inundated/saturated (4)
- Regularly inundated/saturated (3)
- Seasonally inundated (2)
- Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- None or none apparent (12)
- Recovered (7)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> stormwater input	<input checked="" type="checkbox"/> other <small>Beavers</small>

6	27
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

All observed beaver impacts were older and didn't seem to affect wetland hydrology negatively.

4a. Substrate disturbance. Score one or double check and average.

- None or none apparent (4)
- Recovered (3)
- Recovering (2)
- Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- Excellent (7)
- Very good (6)
- Good (5)
- Moderately good (4)
- Fair (3)
- Poor to fair (2)
- Poor (1)

4c. Habitat alteration. Score one or double check and average.

- None or none apparent (9)
- Recovered (6)
- Recovering (3)
- Recent or no recovery (1)

Check all disturbances observed	
<input type="checkbox"/> mowing	<input checked="" type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input checked="" type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

27
subtotal this page

X Beavers cutting trees

Aside from the railbed, there were no observed anthropogenic habitat impacts within the wetlands besides a small hidden campsite and the occasional litter.

Site: Project Enzo Mars Petcare Wetland B	Rater(s): Eric Nagy, EMH&T	Date: 10/27/21
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27

30

subtotal first page

0	27
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max 10 pts. subtotal

30

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- Bog (10)
- Fen (10)
- Old growth forest (10)
- Mature forested wetland (5)
- Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- Lake Erie coastal/tributary wetland-restricted hydrology (5)
- Lake Plain Sand Prairies (Oak Openings) (10)
- Relict Wet Prairies (10)
- Known occurrence state/federal threatened or endangered species (10)
- Significant migratory songbird/water fowl habitat or usage (10)
- Category 1 Wetland. See Question 1 Qualitative Rating (-10)

12	39
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max 20 pts. subtotal

42

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- 1 Aquatic bed
- 1 Emergent
- 2 Shrub
- 1 Forest
- Mudflats
- Open water
- Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

- High (5)
- Moderately high(4)
- Moderate (3)
- Moderately low (2)
- Low (1)
- None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- Extensive >75% cover (-5)
- Moderate 25-75% cover (-3)
- Sparse 5-25% cover (-1)
- Nearly absent <5% cover (0)
- Absent (1)

6d. Microtopography.

Score all present using 0 to 3 scale.

- 1 Vegetated hummocks/tussucks
- 1 Coarse woody debris >15cm (6in)
- 2 Standing dead >25cm (10in) dbh
- 2 Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

42

39

Modified Category 2

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input checked="" type="radio"/> NO	If yes, Category 1.
	Question 6. Bogs	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 7. Fens	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES <input checked="" type="radio"/> NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES <input checked="" type="radio"/> NO	If yes, Category 3
Question 11. Relict Wet Prairies	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	2	
	Metric 2. Buffers and surrounding land use	2	
	Metric 3. Hydrology	17 18	
	Metric 4. Habitat	6 8	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	12	
	TOTAL SCORE	39 42	Category based on score breakpoints Modified Cat. 2

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
<p>Did you answer "Yes" to any of the following questions:</p> <p>Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10</p>	<p>YES</p> <p>Wetland is categorized as a Category 3 wetland</p>	<input checked="" type="radio"/> NO	<p>Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM</p>
<p>Did you answer "Yes" to any of the following questions:</p> <p>Narrative Rating Nos. 1, 8b, 9b, 9e, 11</p>	<p>YES</p> <p>Wetland should be evaluated for possible Category 3 status</p>	<input checked="" type="radio"/> NO	<p>Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.</p>
<p>Did you answer "Yes" to</p> <p>Narrative Rating No. 5</p>	<p>YES</p> <p>Wetland is categorized as a Category 1 wetland</p>	<input checked="" type="radio"/> NO	<p>Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM</p>
<p>Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?</p>	<p><input checked="" type="radio"/> YES</p> <p>Wetland is assigned to the appropriate category based on the scoring range</p>	<input type="radio"/> NO	<p>If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.</p>
<p>Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?</p>	<p>YES</p> <p>Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria</p>	<input checked="" type="radio"/> NO	<p>Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).</p>
<p>Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?</p>	<p>YES</p> <p>Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form</p>	<input checked="" type="radio"/> NO	<p>A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.</p>

Final Category
 Choose one Category 1 Category 2 Category 3

No Change

End of Ohio Rapid Assessment Method for Wetlands.